

WEST

Generate Collection

L3: Entry 4 of 5

File: USPT

Feb 23, 1993

US-PAT-NO: 5189028

DOCUMENT-IDENTIFIER: US 5189028 A

TITLE: Composition and method to enhance the efficacy of a fish vaccine and to stimulate the immune system of fish

DATE-ISSUED: February 23, 1993

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Nikl; Libor H.	Port Coquitlam	N/A	N/A	CAX
Allbright; Lawrence J.	Burnaby	N/A	N/A	CAX

US-CL-CURRENT: 424/278.1; 424/234.1, 424/827, 435/69.9, 514/54

CLAIMS:

The embodiments of the invention in which an exclusive property or privilege is claimed are defined as follows:

1. A method to stimulate the immune system of fish that comprises administering to the fish a .beta.-1,3-glucan having a .beta.-1,3-linked main chain with .beta.-1,6-linked single glucose side chains.
2. A method as claimed in claim 1 in which the fish is a species belonging to the family salmonidae.
3. A method as claimed in claim 1 in which the glucan is scleroglucan (SG).
4. A method as claimed in claim 1 in which the glucan is schizophyllan (SPG).
5. A composition to enhance the efficacy of a fish vaccine comprising an antigen source and a .beta.-1,3-glucan having a .beta.-1,3-linked main chain with .beta.-1,6-linked single glucose side chains with an antigen source/.beta.-1,3-glucan weight ratio of from 0.015 to 0.15.
6. A composition as claimed in claim 5 in which the antigen source is a vaccine.
7. A composition as claimed in claim 5 in which the glucan is selected from the group consisting of schizophyllan (SPG) and scleroglucan (SG).
8. An agent to administer to a fish to stimulate the immune system of the fish, comprising an effective amount of .beta.-1,3-glucan having a .beta.-1,3-linked main chain with .beta.-1,6-linked single glucose side chains and fish food as a carrier to enable administration to the fish by mouth.

WEST**End of Result Set**☐ **Generate Collection**

L3: Entry 5 of 5

File: USPT

Sep 15, 1992

US-PAT-NO: 5147862DOCUMENT-IDENTIFIER: US 5147862 A

TITLE: Composition and process to enhance the efficacy of a fish vaccine

DATE-ISSUED: September 15, 1992

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Nikl; Libor	Burnaby	N/A	N/A	CAX
Albright; Lawrence	Burnaby	N/A	N/A	CAX

US-CL-CURRENT: 514/54; 424/195.15, 514/885

CLAIMS:

We claim:

1. A method to enhance the efficacy of a fish vaccine that comprises administering to a fish treated with the vaccine a .beta.-1,3-glucan having a .beta.-1,3-linked main chain with .beta.-1,6-linked single glucose side chains.
2. A method as claimed in claim 1 in which the vaccine is one effective against *Aeromonas salmonicida*.
3. A method as claimed in claim 1 in which the fish is a species belonging to the family salmonidae.
4. A method as claimed in claim 1 in which the glucan is scleroglucan.
5. A method as claimed in claim 1 in which the glucan is schizophyllan (SPG).
6. A method as claimed in claim 5 in which the schizophyllan is used in the form of an unpurified extract.
7. A method as claimed in claim 6 in which the extract is native schizophyllan in a culture broth containing pulverized mycelia.
8. A method as claimed in claim 1 in which the .beta.-1,3-glucan is administered orally.
9. A method as claimed in claim 1 in which the dose of .beta.-1,3-glucan is in the range 15 to 20 mg per kilogram body weight.

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L32 ANSWER 1 OF 57 BIOSIS COPYRIGHT 2001 BIOSIS
ACCESSION NUMBER: 2001:253552 BIOSIS
DOCUMENT NUMBER: PREV200100253552
TITLE: All-D-cecropin B: Synthesis, conformation,
lipopolysaccharide binding, and antibacterial activity.
AUTHOR(S): Bland, John M. (1); De Lucca, Anthony J.; Jacks, Tom J.;
Vigo, Craig B.
CORPORATE SOURCE: (1) Southern Regional Research Center, United States
Department of Agriculture, Agricultural Research Service,
New Orleans, LA, 70179 USA
SOURCE: Molecular and Cellular Biochemistry, (February, 2001) Vol.
218, No. 1-2, pp. 105-111. print.
ISSN: 0300-8177.
DOCUMENT TYPE: Article
LANGUAGE: English
SUMMARY LANGUAGE: English

L32 ANSWER 2 OF 57 BIOSIS COPYRIGHT 2001 BIOSIS
ACCESSION NUMBER: 2000:397130 BIOSIS
DOCUMENT NUMBER: PREV200000397130
TITLE: Enhancement of disease resistance against penaeid acute
viraemia and induction of virus-inactivating activity in
haemolymph of kuruma shrimp, *Penaeus japonicus*, by oral
administration of **Pantoea** agglomerans
lipopolysaccharide (LPS).
AUTHOR(S): Takahashi, Yukinori; Kondo, Masakazu; Itami, Toshiaki (1);
Honda, Teruko; Inagawa, Hiroyuki; Nishizawa, Takeshi; Soma,
Gen-Ichiro; Yokomizo, Yuichi
CORPORATE SOURCE: (1) National Fisheries University, Shimonoseki, Yamaguchi,
759-6595 Japan
SOURCE: Fish & Shellfish Immunology, (August, 2000) Vol. 10, No. 6,
pp. 555-558. print.
ISSN: 1050-4648.
DOCUMENT TYPE: Article
LANGUAGE: English
SUMMARY LANGUAGE: English

L32 ANSWER 3 OF 57 BIOSIS COPYRIGHT 2001 BIOSIS
ACCESSION NUMBER: 1997:394983 BIOSIS
DOCUMENT NUMBER: PREV199799694186
TITLE: Anti-tumor effect of lipopolysaccharide by intradermal
administration as a novel drug delivery system.
AUTHOR(S): Inagawa, Hiroyuki; Nishizawa, Takashi; Noguchi, Katsuo;
Minamimura, Masashi; Takagi, Koichi; Goto, Shigenori; Soma,
Gen-Ichiro (1); Mizuno, Den'ichi
CORPORATE SOURCE: (1) Dep. Molecular Med., Coloproctol. Cent., Takano Hosp.,
4-2-88 Obiyama, Kumamoto 862 Japan
SOURCE: Anticancer Research, (1997) Vol. 17, No. 3C, pp. 2153-2158.
ISSN: 0250-7005.
DOCUMENT TYPE: Article
LANGUAGE: English

L32 ANSWER 4 OF 57 BIOSIS COPYRIGHT 2001 BIOSIS
ACCESSION NUMBER: 1997:394969 BIOSIS
DOCUMENT NUMBER: PREV199799694172
TITLE: Antitumor mechanism of intradermal administration of
lipopolysaccharide.
AUTHOR(S): Inagawa, Hiroyuki; Nishizawa, Takashi; Takagi, Koichi;
Goto, Shigenori; Soma, Gen-Ichiro (1); Mizuno, Den'ichi
CORPORATE SOURCE: (1) Dep. Molecular Med., Coloproctol. Cent., Takano Hosp.,
4-2-88 Obiyama, Kumamoto 862 Japan

SOURCE: Anticancer Research, (1997) Vol. 17, No. 3C, pp. 1961-1964.
ISSN: 0250-7005.
DOCUMENT TYPE: Article
LANGUAGE: English

L32 ANSWER 5 OF 57 BIOSIS COPYRIGHT 2001 BIOSIS
ACCESSION NUMBER: 1996:383409 BIOSIS
DOCUMENT NUMBER: PREV199699105765
TITLE: Intradermal administration of lipopolysaccharide in treatment of human cancer.
AUTHOR(S): Goto, Shigenori (1); Sakai, Sumitaka; Kera, Jiro; Suma, Yukie; Soma, Gen-Ichiro; Takeuchi, Shoshichi
CORPORATE SOURCE: (1) Inst. Bioregul., Scarf-Kaikan 5F, 1-2 Sumiyoshityo, Naka-ku, Yokohama, Kanagawa 231 Japan
SOURCE: Cancer Immunology Immunotherapy, (1996) Vol. 42, No. 4, pp. 255-261.
ISSN: 0340-7004.
DOCUMENT TYPE: Article
LANGUAGE: English

L32 ANSWER 6 OF 57 BIOSIS COPYRIGHT 2001 BIOSIS
ACCESSION NUMBER: 1995:545272 BIOSIS
DOCUMENT NUMBER: PREV199698559572
TITLE: Binding between lipopolysaccharide and cecropin A.
AUTHOR(S): De Lucca, Anthony J. (1); Jacks, Thomas J.; Brogden, Kim A.
CORPORATE SOURCE: (1) Southern Regional Res. Cent., USDA, ARS, 1100 Robert E. Lee Blvd., New Orleans, LA 70124-4305 USA
SOURCE: Molecular and Cellular Biochemistry, (1995) Vol. 151, No. 2, pp. 141-148.
ISSN: 0300-8177.
DOCUMENT TYPE: Article
LANGUAGE: English

L32 ANSWER 7 OF 57 BIOSIS COPYRIGHT 2001 BIOSIS
ACCESSION NUMBER: 1995:226483 BIOSIS
DOCUMENT NUMBER: PREV199598240783
TITLE: Immunomodulator as medicine for morphine and cocaine dependence: Especially effect of LPS.
AUTHOR(S): Okutomi, Takafumi (1); Suzuki, Tsutomu
CORPORATE SOURCE: (1) Biotechnol. Res. Cent., Teikyo Univ., Miyamae-ku, Kawasaki 216 Japan
SOURCE: Yakugaku Zasshi, (1995) Vol. 115, No. 1, pp. 42-51.
ISSN: 0031-6903.
DOCUMENT TYPE: Article; General Review
LANGUAGE: Japanese
SUMMARY LANGUAGE: Japanese; English

L32 ANSWER 8 OF 57 BIOSIS COPYRIGHT 2001 BIOSIS
ACCESSION NUMBER: 1992:393687 BIOSIS
DOCUMENT NUMBER: BA94:65862
TITLE: HOMEOSTASIS AS REGULATED BY ACTIVATED MACROPHAGE III. PROTECTIVE EFFECT OF LPSW LIPOPOLYSACCHARIDE LPS OF WHEAT FLOUR ON GASTRIC ULCER IN MICE AS COMPARED WITH THOSE OF OTHER LPS FROM VARIOUS SOURCES.
AUTHOR(S): INAGAWA H; SAITOH F; IGUCHI M; NISHIZAWA T; OKUTOMI T; MORIKAWA A; SOMA G-I; MIZUNO D
CORPORATE SOURCE: BIOTECHNOL. RES. CENT., TEIKYO UNIV., NOGAWA 907, MIYAMAE-KU, KANAGAWA 216, JPN.
SOURCE: ~~CHEM. PHARM. BULL. (TOKYO)~~, (1992) 40 (4), 998-1000.
CODEN: CPBTAL. ISSN: 0009-2363.
FILE SEGMENT: BA; OLD
LANGUAGE: English

L32 ANSWER 9 OF 57 BIOSIS COPYRIGHT 2001 BIOSIS

ACCESSION NUMBER: 1992:393458 BIOSIS
DOCUMENT NUMBER: BA94:65633
TITLE: HOMEOSTASIS AS REGULATED BY ACTIVATED MACROPHAGE II. LPS OF PLANT ORIGIN OTHER THAN WHEAT FLOUR AND THEIR CONCOMITANT BACTERIA.
AUTHOR(S): INAGAWA H; NISHIZAWA T; TSUKIOKA D; SUDA T; CHIBA Y; OKUTOMI T; MORIKAWA A; SOMA G-I; MIZUNO D-I
CORPORATE SOURCE: BIOTECHNOL. RES. CENT., TEIKYO UNIV., NOGAWA, MIYAMAE-KU, KAWASAKI 216, JPN.
SOURCE: CHEM PHARM BULL (TOKYO), (1992) 40 (4), 994-997.
CODEN: CPBTAL. ISSN: 0009-2363.
FILE SEGMENT: BA; OLD
LANGUAGE: English

L32 ANSWER 10 OF 57 CABA COPYRIGHT 2001 CABI

ACCESSION NUMBER: 2000:158661 CABA
DOCUMENT NUMBER: 20002220363
TITLE: Enhancement of disease resistance against penaeid acute viraemia and induction of virus-inactivating activity in haemolymph of kuruma shrimp, *Penaeus japonicus*, by oral administration of **Pantoea** agglomerans lipopolysaccharide (LPS)
AUTHOR: Takahashi, Y.; Kondo, M.; Itami, T.; Honda, T.; Inagawa, H.; Nishizawa, T.; Soma, G. I.; Yokomizo, Y.
CORPORATE SOURCE: National Fisheries University, Shimonoseki, Yamaguchi 759-6595, Japan.
SOURCE: Fish & Shellfish Immunology, (2000) Vol. 10, No. 6, pp. 555-558. 6 ref.
ISSN: 1050-4648
DOCUMENT TYPE: Journal
LANGUAGE: English

L32 ANSWER 11 OF 57 CABA COPYRIGHT 2001 CABI

ACCESSION NUMBER: 94:84116 CABA
DOCUMENT NUMBER: 940307189
TITLE: Homeostasis as regulated by activated macrophage. III. Protective effect of LPSw (lipopolysaccharide (LPS) of wheat flour) on gastric ulcer in mice as compared with those of other LPS from various sources
AUTHOR: Inagawa, H.; Saitoh, F.; Iguchi, M.; Nishizawa, T.; Okutomi, T.; Morikawa, A.; Soma, G. I.; Mizuno, D.
CORPORATE SOURCE: Biotechnology Research Center, Teikyo University, Nogawa 907, Miyamae-ku, Kawasaki 216, Japan.
SOURCE: Chemical and Pharmaceutical Bulletin, (1992) Vol. 40, No. 4, pp. 998-1000. 14 ref.
ISSN: 0009-2363
DOCUMENT TYPE: Journal
LANGUAGE: English

L32 ANSWER 12 OF 57 CABA COPYRIGHT 2001 CABI

ACCESSION NUMBER: 94:84115 CABA
DOCUMENT NUMBER: 940307188
TITLE: Homeostasis as regulated by activated macrophage. II. LPS of plant origin other than wheat flour and their concomitant bacteria
AUTHOR: Inagawa, H.; Nishizawa, T.; Tsukioka, D.; Suda, T.; Chiba, Y.; Okutomi, T.; Morikawa, A.; Soma, G. I.; Mizuno, D.
CORPORATE SOURCE: Biotechnology Research Center, Teikyo University, Nogawa 907, Miyamae-ku, Kawasaki 216, Japan.
SOURCE: Chemical and Pharmaceutical Bulletin, (1992) Vol. 40, No. 4, pp. 994-997. 16 ref.

ISSN: 0009-2363
DOCUMENT TYPE: Journal
LANGUAGE: English

L32 ANSWER 13 OF 57 CAPLUS COPYRIGHT 2001 ACS
ACCESSION NUMBER: 2001:297693 CAPLUS
TITLE: All-D-cecropin B: synthesis, conformation,
lipopolysaccharide binding, and antibacterial activity
AUTHOR(S): Bland, John M.; De Lucca, Anthony J.; Jacks, Tom J.;
Vigo, Craig B.
CORPORATE SOURCE: Agricultural Research Service, Southern Regional
Research Center, United States Department of
Agriculture, New Orleans, LA, 70179, USA
SOURCE: Mol. Cell. Biochem. (2001), 218(1&2), 105-111
CODEN: MCBIB8; ISSN: 0300-8177
PUBLISHER: Kluwer Academic Publishers
DOCUMENT TYPE: Journal
LANGUAGE: English
REFERENCE COUNT: 27
REFERENCE(S): (1) Andrade, M; Prot Eng, <http://kal-el.ugr.es/k2d/spectra.html> 1993, V6, P383 CAPLUS
(3) Christensen, B; Proc Natl Acad Sci USA 1988, V85,
P5072 CAPLUS
(4) Corriveau, C; Infect Agents Dis 1993, V2, P35
CAPLUS
(6) De Lucca, A; Antimicrob Agents Chemother 1997,
V41, P481 CAPLUS
(7) De Lucca, A; Br J Ind Med 1992, V49, P755 CAPLUS
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L32 ANSWER 14 OF 57 CAPLUS COPYRIGHT 2001 ACS
ACCESSION NUMBER: 2000:273682 CAPLUS
DOCUMENT NUMBER: 133:290573
TITLE: Dynamic aspects of cytokine network to induce
antitumor effects by intradermal administration of
low-molecular-weight lipopolysaccharide derived from
Pantoea agglomerans
AUTHOR(S): Soma, Genichiro
CORPORATE SOURCE: Dep. Mol. Med., Coloproctol. Cent., Takano Hosp.,
4-2-88, Obiyama, Kumamoto, Kumamoto, 862-0924, Japan
SOURCE: Yakugaku Kenkyu no Shinpo (2000), Volume Date 1999,
16, 7-22
CODEN: YAKSEY; ISSN: 0914-4544
PUBLISHER: Yakugaku Kenkyu Shorei Zaidan
DOCUMENT TYPE: Journal; General Review
LANGUAGE: Japanese

L32 ANSWER 15 OF 57 CAPLUS COPYRIGHT 2001 ACS
ACCESSION NUMBER: 1997:498621 CAPLUS
DOCUMENT NUMBER: 127:140517
TITLE: Antitumor effect of lipopolysaccharide by intradermal
administration as a novel drug delivery system
AUTHOR(S): Inagawa, Hiroyuki; Nishizawa, Takashi; Noguchi,
Katsuo; Minamimura, Masashi; Takagi, Koichi; Goto,
Shigenori; Soma, Gen-Ichiro; Mizuno, Den'ichi
CORPORATE SOURCE: Department of Molecular Medicine, Coloproctology
Center, Takano Hospital, Kumamoto, 862, Japan
SOURCE: Anticancer Res. (1997); 17(3C), 2153-2158
CODEN: ANTRD4; ISSN: 0250-7005
PUBLISHER: ~~Anticancer Research~~
DOCUMENT TYPE: Journal
LANGUAGE: English

L32 ANSWER 16 OF 57 CAPLUS COPYRIGHT 2001 ACS

ACCESSION NUMBER: 1997:498595 CAPLUS
DOCUMENT NUMBER: 127:104042
TITLE: Antitumor mechanism of intradermal administration of lipopolysaccharide
AUTHOR(S): Inagawa, Hiroyuki; Nishizawa, Takashi; Takagi, Koichi; Goto, Shigenori; Soma, Gen-Ichiro; Mizuno, Den'ichi
CORPORATE SOURCE: Department of Molecular Medicine, Coloproctology Center, Takano Hospital, Kumamoto, 862, Japan
SOURCE: Anticancer Res. (1997), 17(3C), 1961-1964
CODEN: ANTRD4; ISSN: 0250-7005
PUBLISHER: Anticancer Research
DOCUMENT TYPE: Journal
LANGUAGE: English

L32 ANSWER 17 OF 57 CAPLUS COPYRIGHT 2001 ACS
ACCESSION NUMBER: 1996:459149 CAPLUS
DOCUMENT NUMBER: 125:131946
TITLE: Intradermal administration of lipopolysaccharide in treatment of human cancer
AUTHOR(S): Goto, Shigenori; Sakai, Sumitaka; Kera, Jiro; Suma, Yukie; Soma, Gen-Ichiro; Takeuchi, Shoshichi
CORPORATE SOURCE: Biotechnology Research Center, Teikyo University, Kawasaki, 216, Japan
SOURCE: ~~Cancer Immunol. Immunother. (1996), 42(4), 255-261~~
CODEN: CIIMDN; ISSN: 0340-7004
DOCUMENT TYPE: Journal
LANGUAGE: English

L32 ANSWER 18 OF 57 CAPLUS COPYRIGHT 2001 ACS
ACCESSION NUMBER: 1995:933582 CAPLUS
DOCUMENT NUMBER: 124:4772
TITLE: Binding between lipopolysaccharide and cecropin A
AUTHOR(S): De Lucca, Anthony J.; Jacks, Thomas J.; Brogden, Kim A.
CORPORATE SOURCE: Southern Regional Research Center, USDA, ARS, New Orleans, LA, 70124-4305, USA
SOURCE: Mol. Cell. Biochem. (1995), 151(2), 141-8
CODEN: MCBIB8; ISSN: 0300-8177
DOCUMENT TYPE: Journal
LANGUAGE: English

L32 ANSWER 19 OF 57 CAPLUS COPYRIGHT 2001 ACS
ACCESSION NUMBER: 1995:436386 CAPLUS
DOCUMENT NUMBER: 122:178321
TITLE: Immunomodulator as medicine for morphine and cocaine dependence. Especially effect of LPS
AUTHOR(S): Okutomi, Takafumi; Suzuki, Tsutomu
CORPORATE SOURCE: Biotechnology Research Center, Teikyo University, Shinagawa-ku, 142, Japan
SOURCE: Yakugaku Zasshi (1995), 115(1), 42-51
CODEN: YKKZAJ; ISSN: 0031-6903
DOCUMENT TYPE: Journal
LANGUAGE: Japanese

L32 ANSWER 20 OF 57 CAPLUS COPYRIGHT 2001 ACS
ACCESSION NUMBER: 1992:440033 CAPLUS
DOCUMENT NUMBER: 117:40033
TITLE: Homeostasis as regulated by activated macrophage. II. LPS of plant origin other than wheat flour and their concomitant bacteria
AUTHOR(S): Inagawa, Hiroyuki; Nishizawa, Takashi; Tsukioka, Daisuke; Suda, Takuya; Chiba, Yuko; Okutomi, Takafumi; Morikawa, Akinobu; Soma, Gen Ichiro; Mizuno, Denichi
CORPORATE SOURCE: Biotechnol. Res. Cent., Teikyo Univ., Kawasaki, 216,

SOURCE: Japan
Chem. Pharm. Bull. (1992), 40(4), 994-7
CODEN: CPBTAL; ISSN: 0009-2363
DOCUMENT TYPE: Journal
LANGUAGE: English

L32 ANSWER 21 OF 57 CAPLUS COPYRIGHT 2001 ACS
ACCESSION NUMBER: 1992:420284 CAPLUS
DOCUMENT NUMBER: 117:20284
TITLE: Homeostasis as regulated by activated macrophage.
III. Protective effect of LPSw [lipopolysaccharide
(LPS) of wheat flour] on gastric ulcer in mice as
compared with those of other LPS from various sources
AUTHOR(S): Inagawa, Hiroyuki; Saitoh, Fumiko; Iguchi, Makoto;
Nishizawa, Takashi; Okutomi, Takafumi; Morikawa,
Akinobu; Soma, Gen Ichiro; Mizuno, Denichi
CORPORATE SOURCE: Biotechnol. Res. Cent., Teikyo Univ., Kanagawa, 216,
Japan
SOURCE: Chem. Pharm. Bull. (1992), 40(4), 998-1000
CODEN: CPBTAL; ISSN: 0009-2363
DOCUMENT TYPE: Journal
LANGUAGE: English

L32 ANSWER 22 OF 57 EMBASE COPYRIGHT 2001 ELSEVIER SCI. B.V.
ACCESSION NUMBER: 2001140132 EMBASE
TITLE: All-D-cecropin B: Synthesis, conformation,
lipopolysaccharide binding, and antibacterial activity.
AUTHOR: Bland J.M.; De Lucca A.J.; Jacks T.J.; Vigo C.B.
CORPORATE SOURCE: J.M. Bland, United States Dept. of Agriculture,
Agricultural Research Service, Southern Regional Research
Center, P.O. Box 19687, New Orleans, LA 70179, United
States
SOURCE: Molecular and Cellular Biochemistry, (2001) 218/1-2
(105-111).
Refs: 27
ISSN: 0300-8177 CODEN: MCBIB8
COUNTRY: Netherlands
DOCUMENT TYPE: Journal; Article
FILE SEGMENT: 004 Microbiology
029 Clinical Biochemistry
030 Pharmacology
037 Drug Literature Index
LANGUAGE: English
SUMMARY LANGUAGE: English

L32 ANSWER 23 OF 57 EMBASE COPYRIGHT 2001 ELSEVIER SCI. B.V.
ACCESSION NUMBER: 97229173 EMBASE
DOCUMENT NUMBER: 1997229173
TITLE: Anti-tumor effect of lipopolysaccharide by intradermal
administration as a novel drug delivery system.
AUTHOR: Inagawa H.; Nishizawa T.; Noguchi K.; Minamimura M.; Takagi
K.; Goto S.; Soma G.-I.; Mizuno D.
CORPORATE SOURCE: Dr. G.-I. Soma, Department of Molecular Medicine,
Coloproctology Center, Takano Hospital, 4-2-88 Obiyama,
Kumamoto 862, Japan
SOURCE: Anticancer Research, (1997) 17/3 C (2153-2158).
Refs: 18
ISSN: 0250-7005 CODEN: ANTRD4
COUNTRY: Greece
DOCUMENT TYPE: Journal; Article
FILE SEGMENT: 016 Cancer
030 Pharmacology
037 Drug Literature Index
039 Pharmacy

LANGUAGE: English
SUMMARY LANGUAGE: English

L32 ANSWER 24 OF 57 EMBASE COPYRIGHT 2001 ELSEVIER SCI. B.V.
ACCESSION NUMBER: 97229146 EMBASE
DOCUMENT NUMBER: 1997229146
TITLE: Antitumor mechanism of intradermal administration of lipopolysaccharide.
AUTHOR: Inagawa H.; Nishizawa T.; Takagi K.; Goto S.; Soma G.-I.; Mizuno D.
CORPORATE SOURCE: G.-I. Soma, Department of Molecular Medicine, Coloproctology Center, Takano Hospital, 4-2-88 Obiyama, Kumamoto 862, Japan
SOURCE: Anticancer Research, (1997) 17/3 C (1961-1964).
Refs: 18
ISSN: 0250-7005 CODEN: ANTRD4
COUNTRY: Greece
DOCUMENT TYPE: Journal; Article
FILE SEGMENT: 016 Cancer
037 Drug Literature Index
LANGUAGE: English
SUMMARY LANGUAGE: English

L32 ANSWER 25 OF 57 EMBASE COPYRIGHT 2001 ELSEVIER SCI. B.V.
ACCESSION NUMBER: 97118391 EMBASE
DOCUMENT NUMBER: 1997118391
TITLE: Protective effect by intradermal administration of **Pantoea** agglomerans LPS (LPSp) and oral administration of ONO-4007, a lipid a derivative, on IgE-dependent ear swelling.
AUTHOR: Inagawa H.; Nishizawa T.; Takagi K.; Mizuno D.; Soma G.-I.
CORPORATE SOURCE: Dr. G.-I. Soma, Department of Molecular Medicine, Coloproctology Center, Takano Hospital, 4-2-88 Obiyama, Kumamoto 862, Japan
SOURCE: Biotherapy, (1997) 11/3 (464-466).
Refs: 4
ISSN: 0914-2223 CODEN: BITPE
COUNTRY: Japan
DOCUMENT TYPE: Journal; Conference Article
FILE SEGMENT: 026 Immunology, Serology and Transplantation
037 Drug Literature Index
LANGUAGE: Japanese
SUMMARY LANGUAGE: Japanese; English

L32 ANSWER 26 OF 57 EMBASE COPYRIGHT 2001 ELSEVIER SCI. B.V.
ACCESSION NUMBER: 96180305 EMBASE
DOCUMENT NUMBER: 1996180305
TITLE: Intradermal administration of lipopolysaccharide in treatment of human cancer.
AUTHOR: Goto S.; Sakai S.; Kera J.; Suma Y.; Soma G.-I.; Takeuchi S.
CORPORATE SOURCE: Institute of Bioregulation, 1-2 Sumiyoshityo, Naka-ku, Yokohama, Kanagawa 231, Japan
SOURCE: Cancer Immunology Immunotherapy, (1996) 42/4 (255-261).
ISSN: 0340-7004 CODEN: CIIMDN
COUNTRY: Germany
DOCUMENT TYPE: Journal; Article
FILE SEGMENT: 016 Cancer
026 Immunology, Serology and Transplantation
030 Pharmacology
037 Drug Literature Index
038 Adverse Reactions Titles
LANGUAGE: English
SUMMARY LANGUAGE: English

L32 ANSWER 27 OF 57 EMBASE COPYRIGHT 2001 ELSEVIER SCI. B.V.
ACCESSION NUMBER: 96153292 EMBASE
DOCUMENT NUMBER: 1996153292
TITLE: Biological activities of low-molecular-mass and
high-molecular-mass-LPS from *Pantoea*
agglomerans.
AUTHOR: Nishizawa T.; Inagawa H.; Noguchi K.; Ikeda K.; Mizuno D.;
Soma G.-D.
CORPORATE SOURCE: Department of Molecular Medicine, Coloproctology Center,
Takano Hospital, 4-2-88 Obiyama, Kumamoto 862, Japan
SOURCE: Biotherapy, (1996) 10/3 (519-521).
~~ISSN: 0914-2223~~ CODEN: BITPE
COUNTRY: Japan
DOCUMENT TYPE: Journal; Article
FILE SEGMENT: 016 Cancer
026 Immunology, Serology and Transplantation
037 Drug Literature Index
LANGUAGE: Japanese
SUMMARY LANGUAGE: English; Japanese

L32 ANSWER 28 OF 57 EMBASE COPYRIGHT 2001 ELSEVIER SCI. B.V.
ACCESSION NUMBER: 96153258 EMBASE
DOCUMENT NUMBER: 1996153258
TITLE: Endogenous TNF production by orally administered ONO-4007,
a novel lipid A derivative.
AUTHOR: Minamimura M.; Inagawa H.; Nishizawa T.; Mizuno D.; Soma
G.-I.
CORPORATE SOURCE: Department of Molecular Medicine, Coloproctology Center,
Takano Hospital, 4-2-88 Obiyama, Kumamoto 862, Japan
SOURCE: Biotherapy, (1996) 10/3 (376-378).
ISSN: 0914-2223 CODEN: BITPE
COUNTRY: Japan
DOCUMENT TYPE: Journal; Article
FILE SEGMENT: 016 Cancer
037 Drug Literature Index
LANGUAGE: Japanese
SUMMARY LANGUAGE: English; Japanese

L32 ANSWER 29 OF 57 EMBASE COPYRIGHT 2001 ELSEVIER SCI. B.V.
ACCESSION NUMBER: 95323054 EMBASE
DOCUMENT NUMBER: 1995323054
TITLE: Binding between lipopolysaccharide and cecropin A.
AUTHOR: De Lucca A.J.; Jacks T.J.; Brogden K.A.
CORPORATE SOURCE: Southern Regional Research Center, USDA, ARS, 1100 Robert
E. Lee Boulevard, New Orleans, LA 70124-4305, United States
SOURCE: Molecular and Cellular Biochemistry, (1995) 151/2
(141-148).
ISSN: 0300-8177 CODEN: MCBIB8
COUNTRY: United States
DOCUMENT TYPE: Journal; Article
FILE SEGMENT: 029 Clinical Biochemistry
037 Drug Literature Index
LANGUAGE: English
SUMMARY LANGUAGE: English

L32 ANSWER 30 OF 57 EMBASE COPYRIGHT 2001 ELSEVIER SCI. B.V.
ACCESSION NUMBER: 95074724 EMBASE
DOCUMENT NUMBER: 1995074724
TITLE: Remarkably high antitumor effect by intradermally
administered lipopolysaccharide of low molecular size and
its clinical application for cancer patients.
AUTHOR: Goto S.
CORPORATE SOURCE: Immunotherapy Center, Towa Hospital, 4-7-10 Towa, Adachi-ku,

SOURCE: Tokyo 120, Japan
Biotherapy, (1995) 9/2 (169-175).
ISSN: 0914-2223 CODEN: BITPE
COUNTRY: Japan
DOCUMENT TYPE: Journal; Conference Article
FILE SEGMENT: 016 Cancer
026 Immunology, Serology and Transplantation
037 Drug Literature Index
LANGUAGE: Japanese
SUMMARY LANGUAGE: English; Japanese

L32 ANSWER 31 OF 57 EMBASE COPYRIGHT 2001 ELSEVIER SCI. B.V.
ACCESSION NUMBER: 95053543 EMBASE
DOCUMENT NUMBER: 1995053543
TITLE: Immunomodulator as medicine for morphine and cocaine
dependence. Especially effect of LPS.
AUTHOR: Okutomi T.; Suzuki T.
CORPORATE SOURCE: Biotechnology Research Center, Teikyo University, Miyamae-
ku, Kawasaki 216, Japan
SOURCE: Yakugaku Zasshi, (1995) 115/1 (42-51).
ISSN: 0031-6903 CODEN: YKKZAJ
COUNTRY: Japan
DOCUMENT TYPE: Journal; General Review
FILE SEGMENT: 026 Immunology, Serology and Transplantation
040 Drug Dependence, Alcohol Abuse and Alcoholism
030 Pharmacology
037 Drug Literature Index
LANGUAGE: Japanese
SUMMARY LANGUAGE: English

L32 ANSWER 32 OF 57 EMBASE COPYRIGHT 2001 ELSEVIER SCI. B.V.
ACCESSION NUMBER: 92180314 EMBASE
DOCUMENT NUMBER: 1992180314
TITLE: Homeostasis as regulated by activated macrophage. III.
Protective effect of LPSw (lipopolysaccharide (LPS) of
wheat flour) on gastric ulcer in mice as compared with
those of other LPS from various sources.
AUTHOR: Inagawa H.; Saitoh F.; Iguchi M.; Nishizawa T.; Okutomi T.;
Morikawa A.; Soma G.-I.; Mizuno D.
CORPORATE SOURCE: Biotechnology Research Center, Teikyo University, Nogawa
907, Miyamae-ku, Kanagawa 216, Japan
SOURCE: Chemical and Pharmaceutical Bulletin, (1992) 40/4
(998-1000).
ISSN: 0009-2363 CODEN: CPBTAL
COUNTRY: Japan
DOCUMENT TYPE: Journal; Article
FILE SEGMENT: 048 Gastroenterology
030 Pharmacology
037 Drug Literature Index
LANGUAGE: English
SUMMARY LANGUAGE: English

L32 ANSWER 33 OF 57 EMBASE COPYRIGHT 2001 ELSEVIER SCI. B.V.
ACCESSION NUMBER: 92180313 EMBASE
DOCUMENT NUMBER: 1992180313
TITLE: Homeostasis as regulated by activated macrophage. II. LPS
of plant origin other than wheat flour and their
concomitant bacteria.
AUTHOR: Inagawa H.; Nishizawa T.; Tsukioka D.; Suda T.; Chiba Y.;
Okutomi T.; Morikawa A.; Soma G.-I.; Mizuno D.
CORPORATE SOURCE: Biotechnology Research Center, Teikyo University, Miyamae-
ku, Kawasaki 216, Japan
SOURCE: Chemical and Pharmaceutical Bulletin, (1992) 40/4
(994-997).

ISSN: 0009-2363 CODEN: CPBTAL
COUNTRY: Japan
DOCUMENT TYPE: Journal; Article
FILE SEGMENT: 004 Microbiology
029 Clinical Biochemistry
037 Drug Literature Index
LANGUAGE: English
SUMMARY LANGUAGE: English

L32 ANSWER 34 OF 57 LIFESCI COPYRIGHT 2001 CSA

ACCESSION NUMBER: 2000:97486 LIFESCI
TITLE: Enhancement of disease resistance against penaeid acute viraemia and induction of virus-inactivating activity in haemolymph of kuruma shrimp, *Penaeus japonicus*, by oral administration of **Pantoea** agglomerans lipopolysaccharide (LPS)
AUTHOR: Takahashi, Y.; Kondo, M.; Itami, T.*; Honda, T.; Inagawa, H.; Nishizawa, T.; Soma, G.; Yokomizo, Y.
CORPORATE SOURCE: National Fisheries University, Shimonoseki, 759-6595, Yamaguchi, Japan; E-mail: itamit@fish-u.ac.jp
SOURCE: Fish & Shellfish Immunology [Fish Shellfish Immunol.], (20000800) vol. 10, no. 6, pp. 555-558.
ISSN: 1050-4648.
DOCUMENT TYPE: Journal
FILE SEGMENT: V; F
LANGUAGE: English
SUMMARY LANGUAGE: English

L32 ANSWER 35 OF 57 LIFESCI COPYRIGHT 2001 CSA

ACCESSION NUMBER: 1998:86525 LIFESCI
TITLE: Anti-tumor effect of lipopolysaccharide by intradermal administration as a novel drug delivery system
AUTHOR: Inagawa, H.; Nishizawa, T.; Noguchi, K.; Minamimura, M.; Takagi, K.; Goto, S.; Soma, G.*; Mizuno, D.
CORPORATE SOURCE: Department of Molecular Medicine, Coloproctology Center, Takano Hospital, 4-2-88 Obiyama, Kumamoto 862, Japan
SOURCE: ANTICANCER RES., (19970600) vol. 17, no. 3C, pp. 2153-2158.
ISSN: 0250-7005.
DOCUMENT TYPE: Journal
FILE SEGMENT: W3
LANGUAGE: English
SUMMARY LANGUAGE: English

L32 ANSWER 36 OF 57 MEDLINE

ACCESSION NUMBER: 2000463759 MEDLINE
DOCUMENT NUMBER: 20468804 PubMed ID: 11016589
TITLE: Enhancement of disease resistance against penaeid acute viraemia and induction of virus-inactivating activity in haemolymph of kuruma shrimp, *Penaeus japonicus*, by oral administration of **Pantoea** agglomerans lipopolysaccharide (LPS).
AUTHOR: Takahashi Y; Kondo M; Itami T; Honda T; Inagawa H; Nishizawa T; Soma G I; Yokomizo Y
CORPORATE SOURCE: National Fisheries University, Shimonoseki, Yamaguchi, Japan.
SOURCE: FISH & SHELLFISH IMMUNOLOGY, (2000 Aug) 10 (6) 555-8.
Journal code: DR8; 9505220. ISSN: 1050-4648.
PUB. COUNTRY: ENGLAND: United Kingdom
Journal; Article; (JOURNAL ARTICLE)
LANGUAGE: English
FILE SEGMENT: Priority Journals
ENTRY MONTH: 200103
ENTRY DATE: Entered STN: 20010404
Last Updated on STN: 20010404

Entered PubMed: 20010110
Entered Medline: 20010301

L32 ANSWER 37 OF 57 MEDLINE

ACCESSION NUMBER: 97359764 MEDLINE
DOCUMENT NUMBER: 97359764 PubMed ID: 9216680
TITLE: Anti-tumor effect of lipopolysaccharide by intradermal
administration as a novel drug delivery system.
AUTHOR: Inagawa H; Nishizawa T; Noguchi K; Minamimura M; Takagi K;
Goto S; Soma G; Mizuno D
CORPORATE SOURCE: Department of Molecular Medicine, Takano Hospital,
Kumamoto, Japan.
SOURCE: ANTICANCER RESEARCH, (1997 May-Jun) 17 (3C) 2153-8.
Journal code: 59L; 8102988. ISSN: 0250-7005.
PUB. COUNTRY: Greece
Journal; Article; (JOURNAL ARTICLE)
LANGUAGE: English
FILE SEGMENT: Priority Journals
ENTRY MONTH: 199708
ENTRY DATE: Entered STN: 19970813
Last Updated on STN: 19990129
Entered Medline: 19970804

L32 ANSWER 38 OF 57 MEDLINE

ACCESSION NUMBER: 97359736 MEDLINE
DOCUMENT NUMBER: 97359736 PubMed ID: 9216652
TITLE: Antitumor mechanism of intradermal administration of
lipopolysaccharide.
AUTHOR: Inagawa H; Nishizawa T; Takagi K; Goto S; Soma G; Mizuno D
CORPORATE SOURCE: Department of Molecular Medicine, Takano Hospital,
Kumamoto, Japan.
SOURCE: ANTICANCER RESEARCH, (1997 May-Jun) 17 (3C) 1961-4.
Journal code: 59L; 8102988. ISSN: 0250-7005.
PUB. COUNTRY: Greece
Journal; Article; (JOURNAL ARTICLE)
LANGUAGE: English
FILE SEGMENT: Priority Journals
ENTRY MONTH: 199708
ENTRY DATE: Entered STN: 19970813
Last Updated on STN: 19990129
Entered Medline: 19970804

L32 ANSWER 39 OF 57 MEDLINE

ACCESSION NUMBER: 96265097 MEDLINE
DOCUMENT NUMBER: 96265097 PubMed ID: 8665574
TITLE: Intradermal administration of lipopolysaccharide in
treatment of human cancer.
AUTHOR: Goto S; Sakai S; Kera J; Suma Y; Soma G I; Takeuchi S
CORPORATE SOURCE: Biotechnology Research Center, Teikyo University, Kanagawa,
Japan.
SOURCE: CANCER IMMUNOLOGY, IMMUNOTHERAPY, (1996 May) 42 (4) 255-61.
Journal code: CN3; 8605732. ISSN: 0340-7004.
PUB. COUNTRY: GERMANY: Germany, Federal Republic of
(CLINICAL TRIAL)
Journal; Article; (JOURNAL ARTICLE)
LANGUAGE: English
FILE SEGMENT: Priority Journals
ENTRY MONTH: 199608
ENTRY DATE: Entered STN: 19960819
Last Updated on STN: 19990129
Entered Medline: 19960806

L32 ANSWER 40 OF 57 MEDLINE

ACCESSION NUMBER: 96150988 MEDLINE

DOCUMENT NUMBER: 96150988 PubMed ID: 8569759
TITLE: Binding between lipopolysaccharide and cecropin A.
AUTHOR: De Lucca A J; Jacks T J; Brogden K A
CORPORATE SOURCE: Southern Regional Research Center, USDA, ARS, New Orleans,
LA 70124-4305, USA.
SOURCE: MOLECULAR AND CELLULAR BIOCHEMISTRY, (1995 Oct 18) 151 (2)
141-8.
Journal code: NGU; 0364456. ISSN: 0300-8177.
PUB. COUNTRY: Netherlands
Journal; Article; (JOURNAL ARTICLE)
LANGUAGE: English
FILE SEGMENT: Priority Journals
ENTRY MONTH: 199603
ENTRY DATE: Entered STN: 19960315
Last Updated on STN: 19960315
Entered Medline: 19960306

L32 ANSWER 41 OF 57 MEDLINE

ACCESSION NUMBER: 95213940 MEDLINE
DOCUMENT NUMBER: 95213940 PubMed ID: 7699580
TITLE: Immunomodulator as medicine for morphine and cocaine
dependence. Especially effect of LPS.
AUTHOR: Okutomi T; Suzuki T
CORPORATE SOURCE: Biotechnology Research Center, Teikyo University, Kawasaki,
Japan.
SOURCE: YAKUGAKU ZASSHI. JOURNAL OF THE PHARMACEUTICAL SOCIETY OF
JAPAN, (1995 Jan) 115 (1) 42-51. Ref: 77
Journal code: JON; 0413613. ISSN: 0031-6903.
PUB. COUNTRY: Japan
Journal; Article; (JOURNAL ARTICLE)
General Review; (REVIEW)
(REVIEW, TUTORIAL)
LANGUAGE: Japanese
FILE SEGMENT: Priority Journals
ENTRY MONTH: 199505
ENTRY DATE: Entered STN: 19950510
Last Updated on STN: 19980206
Entered Medline: 19950502

L32 ANSWER 42 OF 57 MEDLINE

ACCESSION NUMBER: 93042841 MEDLINE
DOCUMENT NUMBER: 93042841 PubMed ID: 1421014
TITLE: Inhibition of morphine dependence by a lipopolysaccharide
from Pantoea agglomerans.
AUTHOR: Okutomi T; Nishizawa T; Inagawa H; Soma G; Minami M; Satoh
M; Mizuno D
CORPORATE SOURCE: Biotechnology Research Center, Teikyo University, Kawasaki,
Japan.
SOURCE: EUROPEAN CYTOKINE NETWORK, (1992 Jul-Aug) 3 (4) 417-20.
Journal code: A56; 9100879. ISSN: 1148-5493.
PUB. COUNTRY: France
Journal; Article; (JOURNAL ARTICLE)
LANGUAGE: English
FILE SEGMENT: Priority Journals
ENTRY MONTH: 199212
ENTRY DATE: Entered STN: 19930122
Last Updated on STN: 19970203
Entered Medline: 19921221

L32 ANSWER 43 OF 57 MEDLINE

ACCESSION NUMBER: 92405346 MEDLINE
DOCUMENT NUMBER: 92405346 PubMed ID: 1525959
TITLE: Homeostasis as regulated by activated macrophage. III.
Protective effect of LPSw (lipopolysaccharide (LPS) of

wheat flour) on gastric ulcer in mice as compared with those of other LPS from various sources.

AUTHOR: Inagawa H; Saitoh F; Iguchi M; Nishizawa T; Okutomi T; Morikawa A; Soma G I; Mizuno D

CORPORATE SOURCE: Biotechnology Research Center, Teikyo University, Kanagawa, Japan.

SOURCE: CHEMICAL AND PHARMACEUTICAL BULLETIN, (1992 Apr) 40 (4) 998-1000.

PUB. COUNTRY: Japan

LANGUAGE: English

FILE SEGMENT: Priority Journals

ENTRY MONTH: 199210

ENTRY DATE: Entered STN: 19921106
Last Updated on STN: 19921106
Entered Medline: 19921020

L32 ANSWER 44 OF 57 MEDLINE

ACCESSION NUMBER: 92405345 MEDLINE

DOCUMENT NUMBER: 92405345 PubMed ID: 1525958

TITLE: Homeostasis as regulated by activated macrophage. II. LPS of plant origin other than wheat flour and their concomitant bacteria.

AUTHOR: Inagawa H; Nishizawa T; Tsukioka D; Suda T; Chiba Y; Okutomi T; Morikawa A; Soma G I; Mizuno D

CORPORATE SOURCE: Biotechnology Research Center, Teikyo University, Kawasaki, Japan.

SOURCE: CHEMICAL AND PHARMACEUTICAL BULLETIN, (1992 Apr) 40 (4) 994-7.

PUB. COUNTRY: Japan

LANGUAGE: English

FILE SEGMENT: Priority Journals

ENTRY MONTH: 199210

ENTRY DATE: Entered STN: 19921106
Last Updated on STN: 19921106
Entered Medline: 19921020

L32 ANSWER 45 OF 57 SCISEARCH COPYRIGHT 2001 ISI (R)

ACCESSION NUMBER: 2001:245033 SCISEARCH

THE GENUINE ARTICLE: 409RK

TITLE: All-D-cecropin B: Synthesis, conformation, lipopolysaccharide binding, and antibacterial activity

AUTHOR: Bland J M (Reprint); De Lucca A J; Jacks T J; Vigo C B

CORPORATE SOURCE: ARS, USDA, So Reg Res Ctr, POB 19687, New Orleans, LA 70179 USA (Reprint); ARS, USDA, So Reg Res Ctr, New Orleans, LA 70179 USA

COUNTRY OF AUTHOR: USA

SOURCE: MOLECULAR AND CELLULAR BIOCHEMISTRY, (FEB 2001) Vol. 218, No. 1-2, pp. 105-111.

DOCUMENT TYPE: Article; Journal

LANGUAGE: English

REFERENCE COUNT: 27

ABSTRACT IS AVAILABLE IN THE ALL AND IALL FORMATS

L32 ANSWER 46 OF 57 SCISEARCH COPYRIGHT 2001 ISI (R)

ACCESSION NUMBER: 2000:634528 SCISEARCH

THE GENUINE ARTICLE: 345HT

TITLE: Enhancement of disease resistance against penaeid acute

viraemia and induction of virus-inactivating activity in
haemolymph of kuruma shrimp, *Penaeus japonicus*, by oral
administration of **Pantoea** agglomerans
lipopolysaccharide (LPS)

AUTHOR: Takahashi Y; Kondo M; Itami T (Reprint); Honda T; Inagawa
H; Nishizawa T; Soma G I; Yokomizo Y

CORPORATE SOURCE: NATL FISHERIES UNIV, SHIMONOSEKI, YAMAGUCHI 75965, JAPAN
(Reprint); NATL FISHERIES UNIV, SHIMONOSEKI, YAMAGUCHI
75965, JAPAN; TAKANO HOSP, OBIYAMA, KUMAMOTO 862092,
JAPAN; NATL INST ANIM HLTH, TSUKUBA, IBARAKI 3050856,
JAPAN

COUNTRY OF AUTHOR: JAPAN

SOURCE: FISH & SHELLFISH IMMUNOLOGY, (AUG 2000) Vol. 10, No. 6,
pp. 555-558.
Publisher: ACADEMIC PRESS LTD, 24-28 OVAL RD, LONDON NW1
7DX, ENGLAND.
ISSN: 1050-4648.

DOCUMENT TYPE: Article; Journal

FILE SEGMENT: AGRI

LANGUAGE: English

REFERENCE COUNT: 6

L32 ANSWER 47 OF 57 SCISEARCH COPYRIGHT 2001 ISI (R)

ACCESSION NUMBER: 97:515132 SCISEARCH

THE GENUINE ARTICLE: XH618

TITLE: Anti-tumor effect of lipopolysaccharide by intradermal
administration as a novel drug delivery system

AUTHOR: Inagawa H; Nishizawa T; Noguchi K; Minamimura M; Takagi K;
Goto S; Soma G I (Reprint); Mizuno D

CORPORATE SOURCE: TAKANO HOSP, COLOPROCTOL CTR, DEPT MOL MED, 4-2-88
OBIYAMA, KUMAMOTO 862, JAPAN (Reprint); TAKANO HOSP,
COLOPROCTOL CTR, DEPT MOL MED, KUMAMOTO 862, JAPAN;
KITATAMA HOSP, IMMUNOTHERAPY CTR, CHOFU, TOKYO 182, JAPAN;
ST MARIANNA UNIV, SCH MED, INST MED SCI, MIYAMAE KU,
KAWASAKI, KANAGAWA 216, JAPAN; INST MICROBIAL CHEM, TOKYO
141, JAPAN

COUNTRY OF AUTHOR: JAPAN

SOURCE: ANTICANCER RESEARCH, (MAY-JUN 1997) Vol. 17, No. 3C, pp.
2153-2158.
Publisher: INT INST ANTICANCER RESEARCH, EDITORIAL OFFICE
1ST KM KAPANDNTIOU-KALAMOU RD KAPANDRITI, POB 22, ATHENS
19014, GREECE.
ISSN: 0250-7005.

DOCUMENT TYPE: Article; Journal

FILE SEGMENT: LIFE

LANGUAGE: English

REFERENCE COUNT: 18

ABSTRACT IS AVAILABLE IN THE ALL AND IALL FORMATS

L32 ANSWER 48 OF 57 SCISEARCH COPYRIGHT 2001 ISI (R)

ACCESSION NUMBER: 97:515104 SCISEARCH

THE GENUINE ARTICLE: XH618

TITLE: Antitumor mechanism of intradermal administration of
lipopolysaccharide

AUTHOR: Inagawa H; Nishizawa T; Takagi K; Goto S; Soma G I
(Reprint); Mizuno D

CORPORATE SOURCE: TAKANO HOSP, DEPT MOL MED, COLOPROCTOL CTR, 4-2-88
OBIYAMA, KUMAMOTO 862, JAPAN (Reprint); TAKANO HOSP, DEPT
MOL MED, COLOPROCTOL CTR, KUMAMOTO 862, JAPAN; KITATAMA
HOSP, IMMUNOTHERAPY CTR, CHOFU, TOKYO 182, JAPAN; ST
MARIANNA UNIV, SCH MED, INST MED SCI, MIYAMAE KU,
KAWASAKI, KANAGAWA 216, JAPAN; INST MICROBIAL CHEM,
SHINAGAWA, TOKYO 141, JAPAN

COUNTRY OF AUTHOR: JAPAN

SOURCE: ANTICANCER RESEARCH, (MAY-JUN 1997) Vol. 17, No. 3C, pp. 1961-1964.
Publisher: INT INST ANTICANCER RESEARCH, EDITORIAL OFFICE
1ST KM KAPANDNTIOU-KALAMOU RD KAPANDRITI, POB 22, ATHENS 19014, GREECE.
ISSN: 0250-7005.
DOCUMENT TYPE: Article; Journal
FILE SEGMENT: LIFE
LANGUAGE: English
REFERENCE COUNT: 18
ABSTRACT IS AVAILABLE IN THE ALL AND IALL FORMATS

L32 ANSWER 49 OF 57 SCISEARCH COPYRIGHT 2001 ISI (R)
ACCESSION NUMBER: 96:486996 SCISEARCH
THE GENUINE ARTICLE: UT090
TITLE: INTRADERMAL ADMINISTRATION OF LIPOPOLYSACCHARIDE IN TREATMENT OF HUMAN CANCER
AUTHOR: GOTO S (Reprint); SAKAI S; KERA J; SUMA Y; SOMA G I; TAKEUCHI S
CORPORATE SOURCE: INST BIOREGULAT, NAKA KU, SCARF KAIKAN 5F, 1-2 SUMIYOSHITYO, YOKOHAMA, KANAGAWA 231, JAPAN (Reprint); TEIKYO UNIV, BIOTECHNOL RES CTR, MIYAMAE KU, KAWASAKI, KANAGAWA 216, JAPAN
COUNTRY OF AUTHOR: JAPAN
SOURCE: CANCER IMMUNOLOGY IMMUNOTHERAPY, (MAY 1996) Vol. 42, No. 4, pp. 255-261.
ISSN: 0340-7004.
DOCUMENT TYPE: Article; Journal
FILE SEGMENT: LIFE
LANGUAGE: ENGLISH
REFERENCE COUNT: 20
ABSTRACT IS AVAILABLE IN THE ALL AND IALL FORMATS

L32 ANSWER 50 OF 57 SCISEARCH COPYRIGHT 2001 ISI (R)
ACCESSION NUMBER: 95:788276 SCISEARCH
THE GENUINE ARTICLE: TD895
TITLE: BINDING BETWEEN LIPOPOLYSACCHARIDE AND CECROPIN-A
AUTHOR: DELUCCA A J (Reprint); JACKS T J; BROGDEN K A
CORPORATE SOURCE: USDA ARS, SO REG RES CTR, 1100 ROBERT E LEE BLVD, NEW ORLEANS, LA, 70124 (Reprint); USDA ARS, NATL ANIM DIS CTR, AMES, IA, 50010
COUNTRY OF AUTHOR: USA
SOURCE: MOLECULAR AND CELLULAR BIOCHEMISTRY, (18 OCT 1995) Vol. 151, No. 2, pp. 141-148.
ISSN: 0300-8177.
DOCUMENT TYPE: Article; Journal
FILE SEGMENT: LIFE
LANGUAGE: ENGLISH
REFERENCE COUNT: 60
ABSTRACT IS AVAILABLE IN THE ALL AND IALL FORMATS

L32 ANSWER 51 OF 57 SCISEARCH COPYRIGHT 2001 ISI (R)
ACCESSION NUMBER: 95:211920 SCISEARCH
THE GENUINE ARTICLE: QM340
TITLE: IMMUNOMODULATOR AS MEDICINE FOR MORPHINE AND COCAINE DEPENDENCE - ESPECIALLY EFFECT OF LPS
AUTHOR: OKUTOMI T (Reprint); SUZUKI T
CORPORATE SOURCE: TEIKYO UNIV, BIOTECHNOL RES CTR, MIYAMAE KU, KAWASAKI, KANAGAWA 216, JAPAN (Reprint); HOSHI UNIV, FAC PHARMACEUT SCI, SHINAGAWA KU, TOKYO 142, JAPAN
COUNTRY OF AUTHOR: JAPAN
SOURCE: YAKUGAKU ZASSHI-JOURNAL OF THE PHARMACEUTICAL SOCIETY OF JAPAN, (JAN 1995) Vol. 115, No. 1, pp. 42-51.
ISSN: 0031-6903.

DOCUMENT TYPE: Article; Journal
FILE SEGMENT: LIFE
LANGUAGE: Japanese
REFERENCE COUNT: 73

ABSTRACT IS AVAILABLE IN THE ALL AND IALL FORMATS

L32 ANSWER 52 OF 57 SCISEARCH COPYRIGHT 2001 ISI (R)

ACCESSION NUMBER: 92:322756 SCISEARCH

THE GENUINE ARTICLE: HU581

TITLE: HOMEOSTASIS AS REGULATED BY ACTIVATED MACROPHAGE .3.
PROTECTIVE EFFECT OF LPSW (LIPOPOLYSACCHARIDE (LPS) OF
WHEAT-FLOUR) ON GASTRIC-ULCER IN MICE AS COMPARED WITH
THOSE OF OTHER LPS FROM VARIOUS SOURCES

AUTHOR: INAGAWA H; SAITOH F; IGUCHI M; NISHIZAWA T; OKUTOMI T;
MORIKAWA A; SOMA G I (Reprint); MIZUNO D

CORPORATE SOURCE: TEIKYO UNIV, BIOTECHNOL RES CTR, NOGAWA 907, MIYAMAE KU,
KANAGAWA 216, JAPAN

COUNTRY OF AUTHOR: JAPAN

SOURCE: CHEMICAL & PHARMACEUTICAL BULLETIN, (APR 1992) Vol. 40,
No. 4, pp. 998-1000.
ISSN: 0009-2363.

DOCUMENT TYPE: Article; Journal

FILE SEGMENT: LIFE

LANGUAGE: ENGLISH

REFERENCE COUNT: 14

ABSTRACT IS AVAILABLE IN THE ALL AND IALL FORMATS

L32 ANSWER 53 OF 57 SCISEARCH COPYRIGHT 2001 ISI (R)

ACCESSION NUMBER: 92:322755 SCISEARCH

THE GENUINE ARTICLE: HU581

TITLE: HOMEOSTASIS AS REGULATED BY ACTIVATED MACROPHAGE .2. LPS
OF PLANT-ORIGIN OTHER THAN WHEAT-FLOUR AND THEIR
CONCOMITANT BACTERIA

AUTHOR: INAGAWA H; NISHIZAWA T; TSUKIOKA D; SUDA T; CHIBA Y;
OKUTOMI T; MORIKAWA A; SOMA G I (Reprint); MIZUNO D

CORPORATE SOURCE: TEIKYO UNIV, BIOTECHNOL RES CTR, MIYAMAE KU, KAWASAKI 216,
JAPAN; CHIBA FLOUR MILLING CO, SHINMINATO, CHIBA 260,
JAPAN

COUNTRY OF AUTHOR: JAPAN

SOURCE: CHEMICAL & PHARMACEUTICAL BULLETIN, (APR 1992) Vol. 40,
No. 4, pp. 994-997.
ISSN: 0009-2363.

DOCUMENT TYPE: Article; Journal

FILE SEGMENT: LIFE

LANGUAGE: ENGLISH

REFERENCE COUNT: 18

ABSTRACT IS AVAILABLE IN THE ALL AND IALL FORMATS

L32 ANSWER 54 OF 57 USPATFULL

ACCESSION NUMBER: 96:16899 USPATFULL

TITLE: Pure culture of Pantoea agglomerans ferm BP-3511

INVENTOR(S): Soma, Gen-Ichiro, 1-10-21, Higashi-Tamagawa, Setagaya
Ward, Tokyo, Japan

Yoshimura, Kiyoshi, Okamoto-18, Chiba, Japan

Tsukioka, Daisuke, Okamoto-18, Chiba, Japan

Mizuno, Den'Ichi, Okamoto-18, Kamakura City, Kanagawa,
Japan

Oshima, Haruyuki, Hachioji, Japan

PATENT ASSIGNEE(S): Soma, Gen-Ichiro, Tokyo, Japan (non-U.S. individual)

Mizuno, Den'Ichi, Kanagawa, Japan (non-U.S. individual)

NUMBER

DATE

PATENT INFORMATION:

US 5494819

19960227

APPLICATION INFO.: US 1994-226636 19940412 (8)
RELATED APPLN. INFO.: Division of Ser. No. US 1991-747633, filed on 20 Aug
1991, now patented, Pat. No. US 5346891

	NUMBER	DATE
PRIORITY INFORMATION:	JP 1990-218599	19900820
	JP 1990-312932	19901120
DOCUMENT TYPE:	Utility	
PRIMARY EXAMINER:	Rollins, John W.	
ASSISTANT EXAMINER:	Ware, Deborah K.	
LEGAL REPRESENTATIVE:	Fish & Richardson	
NUMBER OF CLAIMS:	1	
EXEMPLARY CLAIM:	1	
NUMBER OF DRAWINGS:	5 Drawing Figure(s); 3 Drawing Page(s)	
LINE COUNT:	1009	

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

L32 ANSWER 55 OF 57 USPATFULL

ACCESSION NUMBER: 95:40931 USPATFULL
TITLE: Method for the treatment of narcotic withdrawal
symptoms in animals using lipopolysaccharides
INVENTOR(S): Soma, Gen-Ichiro, 1-10-21, Higashi-Tamagawa, Setagaya
Ward, Tokyo, Japan
Yoshimura, Kiyoshi, Okamoto-18, Chiba, Japan
Tsukioka, Daisuke, Okamoto-18, Chiba, Japan
Mizuno, Den'Ichi, Okamoto-18, Kamakura City, Kanagawa,
Japan
Oshima, Haruyuki, Hachioji, Japan
PATENT ASSIGNEE(S): Soma, Gen-Ichiro, Tokyo, Japan (non-U.S. individual)
Mizuno, Den'Ichi, Kanagawa, Japan (non-U.S. individual)

	NUMBER	DATE
PATENT INFORMATION:	US 5413993	19950509
APPLICATION INFO.:	US 1992-932657	19920820 (7)
DOCUMENT TYPE:	Utility	
PRIMARY EXAMINER:	Robinson, Douglas W.	
ASSISTANT EXAMINER:	Ware, D.	
LEGAL REPRESENTATIVE:	Spensley Horn Jubas & Lubitz	
NUMBER OF CLAIMS:	3	
EXEMPLARY CLAIM:	1	
NUMBER OF DRAWINGS:	5 Drawing Figure(s); 5 Drawing Page(s)	
LINE COUNT:	941	

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

L32 ANSWER 56 OF 57 USPATFULL

ACCESSION NUMBER: 94:79976 USPATFULL
TITLE: Lipopolysaccharide-producing bacteria,
lipopolysaccharides, and lipopolysaccharide-containing,
medicines and veterinary medicines
INVENTOR(S): Soma, Gen-Ichiro, 1-10-21, Higashi-Tamagawa, Setagaya
Ward, Tokyo, Japan
Yoshimura, Kiyoshi, Okamoto-18, Chiba, Japan
Tsukioka, Daisuke, Okamoto-18, Chiba, Japan
Mizuno, Den'ichi, Okamoto-18, Kamakura City, Kanagawa,
Japan
Oshima, Haruyuki, Hachioji, Japan
PATENT ASSIGNEE(S): Soma, Gen-Ichiro, Tokyo, Japan (non-U.S. individual)
Mizuno, Den'ichi, Kanagawa, Japan (non-U.S. individual)

	NUMBER	DATE
PATENT INFORMATION:	US 5346891	19940913

APPLICATION INFO.: US 1991-747633 19910820 (7)

	NUMBER	DATE
PRIORITY INFORMATION:	JP 1990-218599	19900820
	JP 1990-312932	19901120
DOCUMENT TYPE:	Utility	
PRIMARY EXAMINER:	Robinson, Douglas W.	
ASSISTANT EXAMINER:	Ware, Deborah K.	
LEGAL REPRESENTATIVE:	Spensley, Horn, Jubas & Lubitz	
NUMBER OF CLAIMS:	6	
EXEMPLARY CLAIM:	1	
NUMBER OF DRAWINGS:	5 Drawing Figure(s); 3 Drawing Page(s)	
LINE COUNT:	1025	

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

L32 ANSWER 57 OF 57 USPATFULL

ACCESSION NUMBER: 94:7676 USPATFULL

TITLE: LPS-containing analgesics and veterinary analgesics

INVENTOR(S): Soma, Gen-Ichiro, 1-10-21, Higashi-Tamagawa, Setagaya
Ward, Tokyo, Japan

Yoshimura, Kiyoshi, Okamoto-18, Chiba, Japan

Tsukioka, Daisuke, Okamoto-18, Chiba, Japan

Mizuno, Den'Ichi, Okamoto-18, Kamakura City, Kanagawa,
Japan

Oshima, Haruyuki, Hachioji, Japan

PATENT ASSIGNEE(S): Mizuno, Den'Ichi, Kanagawa, Japan (non-U.S. individual)
Soma, Gen-Ichiro, Tokyo, Japan (non-U.S. individual)

	NUMBER	DATE
PATENT INFORMATION:	US 5281583	19940125
APPLICATION INFO.:	US 1991-748808	19910822 (7)
RELATED APPLN. INFO.:	Continuation-in-part of Ser. No. US 1991-747728, filed on 20 Aug 1991, now abandoned	

	NUMBER	DATE
PRIORITY INFORMATION:	JP 1990-218599	19900820
	JP 1990-312932	19901120
DOCUMENT TYPE:	Utility	
PRIMARY EXAMINER:	Rollins, John W.	
LEGAL REPRESENTATIVE:	Yamasaki, Kazuyuki	
NUMBER OF CLAIMS:	2	
EXEMPLARY CLAIM:	1	
NUMBER OF DRAWINGS:	11 Drawing Figure(s); 6 Drawing Page(s)	
LINE COUNT:	1862	

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

=>

=> e feedstuff

E1	1	FEEDSTUCK/BI
E2	2	FEEDSTUF/BI
E3	4029	--> FEEDSTUFF/BI
E4	2	FEEDSTUFFCONSUMPTION/BI
E5	1	FEEDSTUFFINGREDIENTS/BI
E6	1	FEEDSTUFFMEAL/BI
E7	1	FEEDSTUFFPROTEIN/BI
E8	8893	FEEDSTUFFS/BI
E9	1	FEEDSTUFFYS/BI
E10	4	FEEDSTUFS/BI
E11	1	FEEDSTUPFS/BI
E12	1	FEEDSUFF/BI

=> e e3and e8

E1	29	E3ALPHA/BI
E2	2	E3AND/BI
E3	0	--> E3AND E8/BI
E4	4	E3AP/BI
E5	1	E3AP1/BI
E6	1	E3AS/BI
E7	1	E3AVE/BI
E8	1	E3AX569A/BI
E9	220	E3B/BI
E10	1	E3B05FCB/BI
E11	1	E3B05FEB/BI
E12	45	E3B1/BI

=> e soma,g

E1	1	SOM800/BI
E2	23518	SOMA/BI
E3	0	--> SOMA,G/BI
E4	1	SOMA1/BI
E5	1	SOMA10/BI
E6	2	SOMA12/BI
E7	2	SOMA3/BI
E8	2	SOMA6/BI
E9	1	SOMAAESTHETIC/BI
E10	1	SOMAATILISTE/BI
E11	1	SOMAATMADJA/BI
E12	3	SOMAATTINEN/BI

=> s crustacean? and fish? (l) feedstuff?

L1 35 CRUSTACEAN? AND FISH? (L) FEEDSTUFF?

=> s gram negative bacteria? and l1

L2 0 GRAM NEGATIVE BACTERIA? AND L1

=> s pantoea and L1

L3 0 PANTOEAL AND L1

=> s l1 and immunity?(l)infection?

L4 0 L1 AND IMMUNITY?(L) INFECTION?

=> s infectious diseases

L5 51314 INFECTIOUS DISEASES

=> s l1 and l5

L6 0 L1 AND L5

=> d l1 ibib 1-35

L1 ANSWER 1 OF 35 BIOSIS COPYRIGHT 2001 BIOSIS

ACCESSION NUMBER: 1999:354700 BIOSIS
DOCUMENT NUMBER: PREV199900354700
TITLE: A note on the method of calculating digestibility coefficients of nutrients provided by single ingredients to feeds of aquatic animals.
AUTHOR(S): Forster, I. (1)
CORPORATE SOURCE: (1) 4160 Marine Drive, West Vancouver, BC, V7V 1N6 Canada
SOURCE: Aquaculture Nutrition, (June, 1999) Vol. 5, No. 2, pp. 143-145.
ISSN: 1353-5773.
DOCUMENT TYPE: Article
LANGUAGE: English
SUMMARY LANGUAGE: English

L1 ANSWER 2 OF 35 BIOSIS COPYRIGHT 2001 BIOSIS
ACCESSION NUMBER: 1999:95708 BIOSIS
DOCUMENT NUMBER: PREV199900095708
TITLE: Evaluation of three in vitro enzyme assays for estimating protein digestibility in the Pacific white shrimp *Penaeus vannamei*.
AUTHOR(S): Lazo, Juan Pablo; Romaine, Robert P. (1); Reigh, Robert C.
CORPORATE SOURCE: (1) Aquaculture Res. Station, La. Agric. Experiment Station, La. State Univ. Agric. Center, 2410 Ben Hur Road, Baton Rouge, LA 70820 USA
SOURCE: Journal of the World Aquaculture Society, (Dec., 1998) Vol. 29, No. 4, pp. 441-450.
ISSN: 0893-8849.
DOCUMENT TYPE: Article
LANGUAGE: English

L1 ANSWER 3 OF 35 BIOSIS COPYRIGHT 2001 BIOSIS
ACCESSION NUMBER: 1998:163655 BIOSIS
DOCUMENT NUMBER: PREV199800163655
TITLE: Growth responses of juvenile red swamp crayfish, *Procambarus clarkii* Girard, to several diets under controlled conditions.
AUTHOR(S): Oliveira, J.; Fabiao, A. (1)
CORPORATE SOURCE: (1) Inst. Superior Agron., Dep. Engenharia Florestal, Lisboa Codex Portugal
SOURCE: Aquaculture Research, (Feb., 1998) Vol. 29, No. 2, pp. 123-129.
ISSN: 1355-557X.
DOCUMENT TYPE: Article
LANGUAGE: English

L1 ANSWER 4 OF 35 BIOSIS COPYRIGHT 2001 BIOSIS
ACCESSION NUMBER: 1997:452802 BIOSIS
DOCUMENT NUMBER: PREV199799752005
TITLE: Preparation, nutrient composition and digestibility of fermented shrimp head silage.
AUTHOR(S): Fagbenro, Oyedapo A.; Bello-Olusoji, Oluayo A.
CORPORATE SOURCE: Dep. Fisheries Wildlife, Federal Univ. Technol., P.M.B. 704, Akure Nigeria
SOURCE: Food Chemistry, (1997) Vol. 60, No. 4, pp. 489-493.
ISSN: 0308-8146.
DOCUMENT TYPE: Article
LANGUAGE: English

L1 ANSWER 5 OF 35 BIOSIS COPYRIGHT 2001 BIOSIS
ACCESSION NUMBER: 1996:121276 BIOSIS
DOCUMENT NUMBER: PREV199698693411
TITLE: A review of nutritional research with crayfish.
AUTHOR(S): Brown, Paul B.
CORPORATE SOURCE: Purdue Univ., Dep. Forestry and Natural Resources, West

SOURCE: Lafayette, IN 47907-1159 USA
Journal of Shellfish Research, (1995) Vol. 14, No. 2, pp.
561-568.
ISSN: 0730-8000.
DOCUMENT TYPE: General Review
LANGUAGE: English

L1 ANSWER 6 OF 35 BIOSIS COPYRIGHT 2001 BIOSIS
ACCESSION NUMBER: 1995:19112 BIOSIS
DOCUMENT NUMBER: PREV199598033412
TITLE: Estimation of apparent phosphorus availability from
inorganic phosphorus sources for *Penaeus vannamei*.
AUTHOR(S): Davis, D. A. (1); Arnold, C. R.
CORPORATE SOURCE: (1) Univ. Tex. at Austin, Marine Sci. Inst., Fisheries
Mariculture Lab., P.O. Box 1267, Port Aransas, TX
78373-1267 USA
SOURCE: Aquaculture, (1994) Vol. 127, No. 2-3, pp. 245-254.
ISSN: 0044-8486.
DOCUMENT TYPE: Article
LANGUAGE: English

L1 ANSWER 7 OF 35 CABA COPYRIGHT 2001 CABI
ACCESSION NUMBER: 1999:148311 CABA
DOCUMENT NUMBER: 991412311
TITLE: Fish nutrition and feeding. Proceedings of the VII
International Symposium on Feeding and Nutrition in
Fish (recent advances in finfish and
crustacean nutrition), Las Palmas de Gran
Canaria, Spain, 1-4 June 1998
AUTHOR: Wilson, R. P. [EDITOR]; Izquierdo, M. S. [EDITOR]
CORPORATE SOURCE: Department of Biochemistry and Molecular Biology,
Mississippi State University, Box 9650 Mississippi
State, MS 39762, USA.
SOURCE: Aquaculture, (1999) Vol. 179, No. 1/4, pp. 534.
ISSN: 0044-8486
DOCUMENT TYPE: Conference
LANGUAGE: English

L1 ANSWER 8 OF 35 CABA COPYRIGHT 2001 CABI
ACCESSION NUMBER: 95:77014 CABA
DOCUMENT NUMBER: 951404012
TITLE: Nutrient requirements of fish
CORPORATE SOURCE: USA, Committee on Animal Nutrition, Board on
Agriculture, National Research Council
SOURCE: Nutrient requirements of fish, (1993) pp. 114. 914
ref.
Publisher: National Academy Press. Washington
ISBN: 0-309-04891-5
PUB. COUNTRY: United States
DOCUMENT TYPE: Report; Company Publication
LANGUAGE: English

L1 ANSWER 9 OF 35 CABA COPYRIGHT 2001 CABI
ACCESSION NUMBER: 80:85168 CABA
DOCUMENT NUMBER: 801497134
TITLE: Proximate and amino acid composition of some natural
fish foods
AUTHOR: Yurkowski, M.; Tabachek, J. L.; Halver, J.E.
[EDITOR]; Tiewes, K. [EDITOR]
CORPORATE SOURCE: Dep. Fisheries and the Environment, Freshwater
Inst., Winnipeg, Manitoba, Canada.
SOURCE: Finfish nutrition and fishfeed technology. Volume 1,
(1979) pp. 435-448. 48 ref.
Publisher: Heenemann Verlagsgesellschaft mbH. Berlin

PUB. COUNTRY: Germany, Federal Republic of
DOCUMENT TYPE: Miscellaneous
LANGUAGE: English
SUMMARY LANGUAGE: French

L1 ANSWER 10 OF 35 CAPLUS COPYRIGHT 2001 ACS

ACCESSION NUMBER: 2000:524833 CAPLUS

DOCUMENT NUMBER: 133:362158

TITLE: Nutrient requirements of fish and **crustaceans**
with application to diet development in aquaculture

AUTHOR(S): Gatlin, Delbert M., III

CORPORATE SOURCE: Department of Wildlife and Fisheries Sciences, Texas
A&M University System, College Station, TX,
77843-2258, USA

SOURCE: ~~Adv. Extrusion Technol. : Aquacult./Anim. Feeds Foods,~~
Proc. Int. Symp. Anim. Aquacult. Feedst. Extrusion
Technol. Int. Semin. Adv. Extrusion Technol. Food
Appl. (1999), Meeting Date 1998, 29-34. Editor(s):
Chang, Yoon Kil; Wang, Shaw S. Technomic Publishing
Co., Inc.: Lancaster, Pa.
CODEN: 69AFKS

DOCUMENT TYPE: Conference; General Review

LANGUAGE: English

REFERENCE COUNT: 9

REFERENCE(S): (1) Cowey, C; Aquaculture 1994, V124, P1 CAPLUS
(5) Sargent, J; Journal of Applied Ichthyology 1995,
V11, P183 CAPLUS
(7) Watanabe, T; Aquaculture 1997, V151, P185 CAPLUS
(8) Wilson, R; Aquaculture 1994, V124, P67 CAPLUS
(9) Woodward, B; Aquaculture 1994, V124, P133 CAPLUS
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L1 ANSWER 11 OF 35 SCISEARCH COPYRIGHT 2001 ISI (R)

ACCESSION NUMBER: 1999:735716 SCISEARCH

THE GENUINE ARTICLE: 238EN

TITLE: A note on the method of calculating digestibility
coefficients of nutrients provided by single ingredients
to feeds of aquatic animals

AUTHOR: Forster I (Reprint)

CORPORATE SOURCE: 4160 MARINE DR, W VANCOUVER, BC V7V 1N6, CANADA (Reprint)

COUNTRY OF AUTHOR: CANADA

SOURCE: AQUACULTURE NUTRITION, (JUN 1999) Vol. 5, No. 2, pp.
143-145.
Publisher: BLACKWELL SCIENCE LTD, P O BOX 88, OSNEY MEAD,
OXFORD OX2 0NE, OXON, ENGLAND.
ISSN: 1353-5773.

DOCUMENT TYPE: Article; Journal

FILE SEGMENT: AGRI

LANGUAGE: English

REFERENCE COUNT: 16

ABSTRACT IS AVAILABLE IN THE ALL AND IALL FORMATS

L1 ANSWER 12 OF 35 SCISEARCH COPYRIGHT 2001 ISI (R)

ACCESSION NUMBER: 96:115886 SCISEARCH

THE GENUINE ARTICLE: TT365

TITLE: A REVIEW OF NUTRITIONAL RESEARCH WITH CRAYFISH

AUTHOR: BROWN P B (Reprint)

CORPORATE SOURCE: PURDUE UNIV, DEPT FORESTRY & NAT RESOURCES, 1159 FORESTRY
BLDG, W LAFAYETTE, IN, 47907 (Reprint)

COUNTRY OF AUTHOR: USA

SOURCE: JOURNAL OF SHELLFISH RESEARCH, (DEC 1995) Vol. 14, No. 2,
pp. 561-568.
ISSN: 0730-8000.

DOCUMENT TYPE: Article; Journal

FILE SEGMENT: AGRI
LANGUAGE: ENGLISH
REFERENCE COUNT: 53
ABSTRACT IS AVAILABLE IN THE ALL AND IALL FORMATS

L1 ANSWER 13 OF 35 SCISEARCH COPYRIGHT 2001 ISI (R)
ACCESSION NUMBER: 94:723935 SCISEARCH
THE GENUINE ARTICLE: PQ810
TITLE: ESTIMATION OF APPARENT PHOSPHORUS AVAILABILITY FROM
INORGANIC PHOSPHORUS SOURCES FOR PENAEUS-VANNAMEI
AUTHOR: DAVIS D A (Reprint); ARNOLD C R
CORPORATE SOURCE: UNIV TEXAS, INST MARINE SCI, FISHERIES & MARICULTURE LAB,
POB 1267, PORT ARANSAS, TX, 78373 (Reprint)
COUNTRY OF AUTHOR: USA
SOURCE: AQUACULTURE, (01 NOV 1994) Vol. 127, No. 2-3, pp. 245-254.
ISSN: 0044-8486.
DOCUMENT TYPE: Article; Journal
FILE SEGMENT: AGRI
LANGUAGE: ENGLISH
REFERENCE COUNT: 24
ABSTRACT IS AVAILABLE IN THE ALL AND IALL FORMATS

L1 ANSWER 14 OF 35 USPATFULL
ACCESSION NUMBER: 2000:7411 USPATFULL
TITLE: Intermediates to pesticidal 5-amino-4-ethylsulfinyl-1-
arylpyrazoles
INVENTOR(S): Wu, Tai-Teh, Chapel Hill, NC, United States
PATENT ASSIGNEE(S): Rhone-Poulenc Inc., Research Triangle Park, NC, United
States (U.S. corporation)

	NUMBER	DATE
PATENT INFORMATION:	US 6015910	20000118
APPLICATION INFO.:	US 1998-208581	19981210 (9)
RELATED APPLN. INFO.:	Division of Ser. No. US 1998-109409, filed on 2 Jul 1998, now patented, Pat. No. US 5883112 which is a division of Ser. No. US 1996-768120, filed on 17 Dec 1996, now patented, Pat. No. US 5814652	

	NUMBER	DATE
PRIORITY INFORMATION:	US 1995-8913	19951220 (60)
DOCUMENT TYPE:	Utility	
PRIMARY EXAMINER:	Higel, Floyd D.	
LEGAL REPRESENTATIVE:	Burns, Doane, Swecker & Mathis, L.L.P.	
NUMBER OF CLAIMS:	3	
EXEMPLARY CLAIM:	1	
LINE COUNT:	1171	
CAS INDEXING IS AVAILABLE FOR THIS PATENT.		

L1 ANSWER 15 OF 35 USPATFULL
ACCESSION NUMBER: 1999:132532 USPATFULL
TITLE: Astaxanthin-producing yeast cells, methods for their
preparation and their use
INVENTOR(S): Flen.o slashed., Bent, Stenl.o slashed.se, Denmark
Christensen, Ib, Aller.o slashed.d, Denmark
Larsen, Robert, Virum, Denmark
Johansen, Steffen Radich, Ega, Denmark
Johnson, Eric A., Madison, WI, United States
PATENT ASSIGNEE(S): DSM N.V., Netherlands (non-U.S. corporation)

	NUMBER	DATE
PATENT INFORMATION:	US 5972642	19991026

APPLICATION INFO.: US 1997-989860 19971212 (8)
RELATED APPLN. INFO.: Continuation of Ser. No. US 1995-484683, filed on 7 Jun 1995, now patented, Pat. No. US 5712110 which is a division of Ser. No. US 1994-322690, filed on 13 Oct 1994, now patented, Pat. No. US 5679567 which is a division of Ser. No. US 1992-919986, filed on 27 Jul 1992, now patented, Pat. No. US 5356810 which is a continuation of Ser. No. US 424306

	NUMBER	DATE
PRIORITY INFORMATION:	DK 1987-1998	19870415
DOCUMENT TYPE:	Utility	
PRIMARY EXAMINER:	Prats, Francisco	
LEGAL REPRESENTATIVE:	Morrison & Foerster, LLP	
NUMBER OF CLAIMS:	12	
EXEMPLARY CLAIM:	1	
LINE COUNT:	1993	

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

L1 ANSWER 16 OF 35 USPATFULL
ACCESSION NUMBER: 1999:34014 USPATFULL
TITLE: Synergistic compositions comprising pesticidal 5-amino-4-ethylsulfinyl-1-arylpyrazoles and piperonyl butoxide
INVENTOR(S): Pilato, Michael Thomas, Cary, NC, United States
Haas, Charles Lee, Garner, NC, United States
PATENT ASSIGNEE(S): Rhone-Poulenc Inc., Research Triangle Park, NC, United States (U.S. corporation)

	NUMBER	DATE
PATENT INFORMATION:	US 5883112	19990316
APPLICATION INFO.:	US 1998-109409	19980702
RELATED APPLN. INFO.:	Division of Ser. No. US 1996-768120, filed on 17 Dec 1996, now patented, Pat. No. US 5814652	

	NUMBER	DATE
PRIORITY INFORMATION:	US 1995-8913	19951220 (60)
DOCUMENT TYPE:	Utility	
PRIMARY EXAMINER:	Higel, Floyd D.	
LEGAL REPRESENTATIVE:	Burns, Doane, Swecker & Mathis, L.L.P.	
NUMBER OF CLAIMS:	29	
EXEMPLARY CLAIM:	1	
LINE COUNT:	1288	

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

L1 ANSWER 17 OF 35 USPATFULL
ACCESSION NUMBER: 1998:119165 USPATFULL
TITLE: Pesticidal 5-amino-4-ethylsulfinyl-1-arylpyrazoles
INVENTOR(S): Wu, Tai-Teh, Chapel Hill, NC, United States
PATENT ASSIGNEE(S): Rhone-Poulenc Inc., Research Triangle Park, NC, United States (U.S. corporation)

	NUMBER	DATE
PATENT INFORMATION:	US 5814652	19980929
APPLICATION INFO.:	US 7681208	19961217 (8)

	NUMBER	DATE
PRIORITY INFORMATION:	US 1995-8913	19951220 (60)
DOCUMENT TYPE:	Utility	

PRIMARY EXAMINER: Ramsuer, Robert W.
LEGAL REPRESENTATIVE: Burns, Doane, Swecker & Mathis, L.L.P.
NUMBER OF CLAIMS: 25
EXEMPLARY CLAIM: 1
LINE COUNT: 1286
CAS INDEXING IS AVAILABLE FOR THIS PATENT.

L1 ANSWER 18 OF 35 USPATFULL

ACCESSION NUMBER: 1998:9341 USPATFULL
TITLE: Astaxanthin-producing yeast cells methods for their
preparation and their use
INVENTOR(S): Flen.o slashed. , Bent, Stenl.o slashed.se, Denmark
Christensen, Ib, Aller.o slashed.d, Denmark
Larsen, Robert, Virum, Denmark
Johansen, Steffen Radich, Ega, Denmark
Johnson, Eric A., Madison, WI, United States
PATENT ASSIGNEE(S): Gist-brocades, B.V., Netherlands (non-U.S. corporation)

	NUMBER	DATE
PATENT INFORMATION:	US 5712110	19980127
APPLICATION INFO.:	US 1995-484683	19950607 (8)
RELATED APPLN. INFO.:	Division of Ser. No. US 1994-322690, filed on 13 Oct 1994 which is a division of Ser. No. US 1992-919986, filed on 27 Jul 1992, now patented, Pat. No. US 5356810 which is a continuation of Ser. No. US 1989-424306, filed on 11 Dec 1989, now abandoned	

	NUMBER	DATE
PRIORITY INFORMATION:	DK 1987-1998	19870415
DOCUMENT TYPE:	Utility	
PRIMARY EXAMINER:	Lankford, Jr., Leon B.	
ASSISTANT EXAMINER:	Prats, Francisco C.	
LEGAL REPRESENTATIVE:	Morrison & Foerster LLP	
NUMBER OF CLAIMS:	12	
EXEMPLARY CLAIM:	1	
LINE COUNT:	1976	
CAS INDEXING IS AVAILABLE FOR THIS PATENT.		

L1 ANSWER 19 OF 35 USPATFULL

ACCESSION NUMBER: 1998:6781 USPATFULL
TITLE: Astaxanthin-producing yeast cells, methods for their
preparation and their use
INVENTOR(S): Flen.o slashed., Bent, Stenl.o slashed.se, Denmark
Christensen, Ib, Aller.o slashed.d, Denmark
Larsen, Robert, Virum, Denmark
Johansen, Steffen Radich, Ega, Denmark
Johnson, Eric A., Madison, WI, United States
PATENT ASSIGNEE(S): Gist-brocades N.V., Delft, Netherlands (non-U.S.
corporation)

	NUMBER	DATE
PATENT INFORMATION:	US 5709856	19980120
APPLICATION INFO.:	US 1995-478292	19950607 (8)
RELATED APPLN. INFO.:	Division of Ser. No. US 1994-322690, filed on 13 Oct 1994 which is a division of Ser. No. US 1992-919986, filed on 27 Jul 1992, now patented, Pat. No. US 5356810 which is a continuation of Ser. No. US 1989-424306, filed on 11 Dec 1989, now abandoned	

NUMBER	DATE
--------	------

PRIORITY INFORMATION: DK 1987-1998 19870415
DOCUMENT TYPE: Utility
PRIMARY EXAMINER: Lankford, Jr., Leon B.
ASSISTANT EXAMINER: Prats, Francisco C.
LEGAL REPRESENTATIVE: Morrison & Foerster LLP
NUMBER OF CLAIMS: 19
EXEMPLARY CLAIM: 1
LINE COUNT: 1864
CAS INDEXING IS AVAILABLE FOR THIS PATENT.

L1 ANSWER 20 OF 35 USPATFULL
ACCESSION NUMBER: 97:117742 USPATFULL
TITLE: Foodstuff for and method of feeding **crustaceans**
and fish
INVENTOR(S): Villamar, Daniel F., Maple Grove, MN, United States
PATENT ASSIGNEE(S): Cargill, Incorporated, Minneapolis, MN, United States
(U.S. corporation)

	NUMBER	DATE
PATENT INFORMATION:	US 5698246	19971216
APPLICATION INFO.:	US 1996-592946	19960129 (8)
DOCUMENT TYPE:	Utility	
PRIMARY EXAMINER:	Paden, Carolyn	
LEGAL REPRESENTATIVE:	Fitch, Even, Tabin & Flannery	
NUMBER OF CLAIMS:	16	
EXEMPLARY CLAIM:	1	
LINE COUNT:	514	

L1 ANSWER 21 OF 35 USPATFULL
ACCESSION NUMBER: 97:96765 USPATFULL
TITLE: Astaxanthin-producing yeast cells, methods for their
preparation and their use
INVENTOR(S): Flen.o slashed. , Bent, Stenl.o slashed.se, Denmark
Christensen, Ib, Aller.o slashed.d, Denmark
Larsen, Robert, Virum, Denmark
Johansen, Steffen Radich, Ega, Denmark
Johnson, Eric A., Madison, WI, United States
PATENT ASSIGNEE(S): Gist-brocades, B.V., Netherlands (non-U.S. corporation)

	NUMBER	DATE
PATENT INFORMATION:	US 5679567	19971021
APPLICATION INFO.:	US 1994-322690	19941013 (8)
RELATED APPLN. INFO.:	Division of Ser. No. US 1992-919986, filed on 27 Jul 1992, now patented, Pat. No. US 5356810 which is a continuation of Ser. No. US 1989-424306, filed on 11 Dec 1989, now abandoned	

	NUMBER	DATE
PRIORITY INFORMATION:	DK 1987-1998	19870415
DOCUMENT TYPE:	Utility	
PRIMARY EXAMINER:	Rollins, John W.	
ASSISTANT EXAMINER:	Prats, Francisco C.	
LEGAL REPRESENTATIVE:	Morrison & Foerster LLP	
NUMBER OF CLAIMS:	2	
EXEMPLARY CLAIM:	1	
LINE COUNT:	1817	
CAS INDEXING IS AVAILABLE FOR THIS PATENT.		

L1 ANSWER 22 OF 35 USPATFULL
ACCESSION NUMBER: 97:86656 USPATFULL
TITLE: Pigmentation with carotenoids

INVENTOR(S): Bernhard, Kurt, Lupsingen, Switzerland
 Broz, Jiri, Rheinfelden, Switzerland
 Hengartner, Urs, Basel, Switzerland
 Kreienbuhl, Paul, Riehen, Switzerland
 Schiedt, Katharina, Arlesheim, Switzerland
 PATENT ASSIGNEE(S): Roche Vitamins Inc., Paramus, NJ, United States (U.S. corporation)

	NUMBER	DATE
PATENT INFORMATION:	US 5670548	19970923
APPLICATION INFO.:	US 1996-726599	19961007 (8)
RELATED APPLN. INFO.:	Division of Ser. No. US 1994-263308, filed on 21 Jun 1994, now patented, Pat. No. US 5605699	

	NUMBER	DATE
PRIORITY INFORMATION:	EP 1993-110074	19930624
	EP 1994-106738	19940429
DOCUMENT TYPE:	Utility	
PRIMARY EXAMINER:	Phelan, D. Gabrielle	
LEGAL REPRESENTATIVE:	Johnston, George W.; Tramaloni, Dennis P.; Pokras, Bruce A.	
NUMBER OF CLAIMS:	5	
EXEMPLARY CLAIM:	1	
LINE COUNT:	942	
CAS INDEXING IS AVAILABLE FOR THIS PATENT.		

L1 ANSWER 23 OF 35 USPATFULL
 ACCESSION NUMBER: 97:15860 USPATFULL
 TITLE: Pigmentation with carotenoids
 INVENTOR(S): Bernhard, Kurt, Lupsingen, Switzerland
 Broz, Jiri, Rheinfelden, Switzerland
 Hengartner, Urs, Basel, Switzerland
 Kreienbuhl, Paul, Riehen, Switzerland
 Schiedt, Katharina, Arlesheim, Switzerland
 PATENT ASSIGNEE(S): Hoffmann-La Roche Inc., Nutley, NJ, United States (U.S. corporation)

	NUMBER	DATE
PATENT INFORMATION:	US 5605699	19970225
APPLICATION INFO.:	US 1994-263308	19940621 (8)

	NUMBER	DATE
PRIORITY INFORMATION:	EP 1993-110074	19930624
	EP 1994-106738	19940429
DOCUMENT TYPE:	Utility	
PRIMARY EXAMINER:	Phelan, D. Gabrielle	
LEGAL REPRESENTATIVE:	Johnston, George W.; Epstein, William H.; Smith, Catherine R.	
NUMBER OF CLAIMS:	4	
EXEMPLARY CLAIM:	1	
LINE COUNT:	981	
CAS INDEXING IS AVAILABLE FOR THIS PATENT.		

L1 ANSWER 24 OF 35 USPATFULL
 ACCESSION NUMBER: 97:9941 USPATFULL
 TITLE: Astaxanthin-producing yeast cells, methods for their preparation and their use
 INVENTOR(S): Flen.o slashed., Bent, Stenl.o slashed.se, Denmark
 Christensen, Ib, Aller.o slashed.d, Denmark
 Larsen, Robert, Virum, Denmark

Johansen, Steffen R., Ega, Denmark
Johnson, Eric A., Madison, WI, United States
PATENT ASSIGNEE(S): Gist-brocades, N.V., Ma Delft, Netherlands (non-U.S. corporation)

	NUMBER	DATE
PATENT INFORMATION:	US 5599711	19970204
APPLICATION INFO.:	US 1994-322950	19941013 (8)
RELATED APPLN. INFO.:	Continuation of Ser. No. US 1992-919986, filed on 27 Jul 1992, now patented, Pat. No. US 5356810 which is a continuation of Ser. No. US 1989-424306, filed on 11 Dec 1989, now abandoned	

	NUMBER	DATE
PRIORITY INFORMATION:	DK 1987-1998	19870415
DOCUMENT TYPE:	Utility	
PRIMARY EXAMINER:	Wityshyn, Michael G.	
ASSISTANT EXAMINER:	Prats, Francisco C.	
LEGAL REPRESENTATIVE:	Morrison & Foerster LLP	
NUMBER OF CLAIMS:	3	
EXEMPLARY CLAIM:	1	
LINE COUNT:	1829	
CAS INDEXING IS AVAILABLE FOR THIS PATENT.		

L1 ANSWER 25 OF 35 USPATFULL
ACCESSION NUMBER: 94:90968 USPATFULL
TITLE: Astaxanthin-producing yeast cells, methods for their preparation and their use
INVENTOR(S): Fleno, Bent, Stenlose, Denmark
Christensen, Ib, Allerod, Denmark
Larsen, Robert, Virum, Denmark
Johansen, Steffen R., Ega, Denmark
Johnson, Eric A., Madison, WI, United States
PATENT ASSIGNEE(S): Gist-brocades N.V., Netherlands (non-U.S. corporation)

	NUMBER	DATE
PATENT INFORMATION:	US 5356810	19941018
APPLICATION INFO.:	US 1992-919986	19920727 (7)
RELATED APPLN. INFO.:	Continuation of Ser. No. US 1989-424306, filed on 12 Nov 1989, now abandoned	

	NUMBER	DATE
PRIORITY INFORMATION:	DK 1987-199887	19870415
DOCUMENT TYPE:	Utility	
PRIMARY EXAMINER:	Knode, Marian	
LEGAL REPRESENTATIVE:	Andrus, Sceales, Starke & Sawall	
NUMBER OF CLAIMS:	1	
EXEMPLARY CLAIM:	1	
LINE COUNT:	1616	
CAS INDEXING IS AVAILABLE FOR THIS PATENT.		

L1 ANSWER 26 OF 35 USPATFULL
ACCESSION NUMBER: 94:90967 USPATFULL
TITLE: Processes for in vivo production of astaxanthin and phaffia rhodozyma yeast of enhanced astaxanthin content
INVENTOR(S): Johnson, Eric A., Madison, WI, United States
Yang, Huei-hsiung, Rockville, MD, United States
Geldiay-Tuncer, Beril, Bostanli-Karsiyaka, Turkey
Hall, William T., Rockville, MD, United States
Schreiber, David, Columbia, MD, United States

PATENT ASSIGNEE(S): Ho, Kwok, San Diego, CA, United States
Igene Biotechnology, Inc., Columbia, MD, United States
(U.S. corporation)

	NUMBER	DATE
PATENT INFORMATION:	US 5356809	19941018
APPLICATION INFO.:	US 1992-837120	19920214 (7)
RELATED APPLN. INFO.:	Division of Ser. No. US 1989-399183, filed on 23 Aug 1989 which is a continuation of Ser. No. US 1989-385961, filed on 28 Jul 1989, now abandoned which is a continuation-in-part of Ser. No. US 1988-229536, filed on 8 Aug 1988, now abandoned	
DOCUMENT TYPE:	Utility	
PRIMARY EXAMINER:	Lilling, Herbert J.	
LEGAL REPRESENTATIVE:	Sughrue, Mion, Zinn, Macpeak & Seas	
NUMBER OF CLAIMS:	4	
EXEMPLARY CLAIM:	1	
NUMBER OF DRAWINGS:	4 Drawing Figure(s); 3 Drawing Page(s)	
LINE COUNT:	908	
CAS INDEXING IS AVAILABLE FOR THIS PATENT.		

L1 ANSWER 27 OF 35 USPATFULL

ACCESSION NUMBER: 93:7040 USPATFULL
TITLE: Processes for in vivo production of astaxanthin and phaffia rhodozyma yeast of enhanced astaxanthin content
INVENTOR(S): Johnson, Eric A., Madison, WI, United States
Schreiber, David, Columbia, MD, United States
Ho, Kwok P., Columbia, MD, United States
Hall, William T., Rockville, MD, United States
Yang, Huei-hsiung, Rockville, MD, United States
Geldiay-Tuncer, Beril, College Park, MD, United States
PATENT ASSIGNEE(S): Igene Biotechnology, Inc., Columbia, MD, United States
(U.S. corporation)

	NUMBER	DATE
PATENT INFORMATION:	US 5182208	19930126
APPLICATION INFO.:	US 1989-399183	19890823 (7)
RELATED APPLN. INFO.:	Continuation of Ser. No. US 1989-385961, filed on 28 Jul 1989, now abandoned which is a continuation-in-part of Ser. No. US 1988-229536, filed on 8 Aug 1988, now abandoned	
DOCUMENT TYPE:	Utility	
PRIMARY EXAMINER:	Lilling, Herbert J.	
LEGAL REPRESENTATIVE:	Sughrue, Mion, Zinn Macpeak & Seas	
NUMBER OF CLAIMS:	21	
EXEMPLARY CLAIM:	1	
NUMBER OF DRAWINGS:	4 Drawing Figure(s); 3 Drawing Page(s)	
LINE COUNT:	977	
CAS INDEXING IS AVAILABLE FOR THIS PATENT.		

L1 ANSWER 28 OF 35 USPATFULL

ACCESSION NUMBER: 91:54795 USPATFULL
TITLE: L-carnitine supplemented catfish diet
INVENTOR(S): Burtle, Gary J., Tifton, GA, United States
Newton, G. Larry, Tifton, GA, United States
Blum, Stephen A., Des Moines, IA, United States
PATENT ASSIGNEE(S): University of Georgia Research Foundation, Inc.,
Athens, GA, United States (U.S. corporation)
Lonza Inc., Fair Lawn, NJ, United States (U.S. corporation)

NUMBER	DATE
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PATENT INFORMATION:	US 5030657	19910709
APPLICATION INFO.:	US 1989-425694	19891023 (7)
DOCUMENT TYPE:	Utility	
PRIMARY EXAMINER:	Waddell, Frederick E.	
ASSISTANT EXAMINER:	Weddington, Kevin	
LEGAL REPRESENTATIVE:	Kilpatrick & Cody	
NUMBER OF CLAIMS:	23	
EXEMPLARY CLAIM:	1	
LINE COUNT:	557	

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

L1 ANSWER 29 OF 35 USPATFULL
 ACCESSION NUMBER: 90:73576 USPATFULL
 TITLE: Ester-stabilized chitin
 INVENTOR(S): Bade, Maria L., Four Bowser Rd., Lexington, MA, United States 02173

	NUMBER	DATE
PATENT INFORMATION:	US 4958011	19900918
APPLICATION INFO.:	US 1986-820247	19860117 (6)
RELATED APPLN. INFO.:	Continuation-in-part of Ser. No. US 1984-622128, filed on 19 Jun 1984, now abandoned which is a continuation-in-part of Ser. No. US 1983-508476, filed on 22 Jun 1983, now abandoned	
DOCUMENT TYPE:	Utility	
PRIMARY EXAMINER:	Brown, Johnnie R.	
ASSISTANT EXAMINER:	Peselev, Elli	
NUMBER OF CLAIMS:	9	
EXEMPLARY CLAIM:	1	
NUMBER OF DRAWINGS:	5 Drawing Figure(s); 3 Drawing Page(s)	
LINE COUNT:	1130	

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

L1 ANSWER 30 OF 35 USPATFULL
 ACCESSION NUMBER: 90:17528 USPATFULL
 TITLE: Feedstuff for artemia
 INVENTOR(S): Kitagawa, Kiyohiro, Chiba, Japan
 Kojima, Eiji, Kanagawa, Japan
 Seto, Akira, Kanagawa, Japan
 Sakamoto, Shuichi, Tokyo, Japan
 Nozawa, Takuji, Chiba, Japan
 PATENT ASSIGNEE(S): The Nisshin Oil Mills, Ltd., Tokyo, Japan (non-U.S. corporation)

	NUMBER	DATE
PATENT INFORMATION:	US 4906479	19900306
APPLICATION INFO.:	US 1988-193229	19880511 (7)
RELATED APPLN. INFO.:	Continuation of Ser. No. US 1986-910484, filed on 23 Sep 1986, now abandoned	

	NUMBER	DATE
PRIORITY INFORMATION:	JP 1985-227977	19851011
	JP 1985-255979	19851115
DOCUMENT TYPE:	Utility	
PRIMARY EXAMINER:	Penland, R. B.	
LEGAL REPRESENTATIVE:	Jeffers, Albert L.; Hoffman, John F.; Steward, Lawrence A.	
NUMBER OF CLAIMS:	5	
EXEMPLARY CLAIM:	1	
NUMBER OF DRAWINGS:	6 Drawing Figure(s); 3 Drawing Page(s)	

LINE COUNT: 371
CAS INDEXING IS AVAILABLE FOR THIS PATENT.

L1 ANSWER 31 OF 35 USPATFULL
ACCESSION NUMBER: 89:62158 USPATFULL
TITLE: Amphibious aquaculture feed distribution machine
INVENTOR(S): Harrington, J. J., Twin Falls, ID, United States
PATENT ASSIGNEE(S): Mariculture Equipment Development, Inc., Twin Falls,
ID, United States (U.S. corporation)

	NUMBER	DATE
PATENT INFORMATION:	US 4852521	19890801
APPLICATION INFO.:	US 1987-34925	19870406 (7)
DOCUMENT TYPE:	Utility	
PRIMARY EXAMINER:	Swiatek, Robert P.	
ASSISTANT EXAMINER:	Price, R. Thomas	
LEGAL REPRESENTATIVE:	Dykas, Frank J.	
NUMBER OF CLAIMS:	27	
EXEMPLARY CLAIM:	1	
NUMBER OF DRAWINGS:	13 Drawing Figure(s); 12 Drawing Page(s)	
LINE COUNT:	633	

L1 ANSWER 32 OF 35 USPATFULL
ACCESSION NUMBER: 87:1213 USPATFULL
TITLE: Process for the manufacture of aquatic bait blocks
INVENTOR(S): Faber, Jerry L., Decatur, IN, United States
Kent, Jr., Richard W., Ft. Wayne, IN, United States
PATENT ASSIGNEE(S): Central Soya Company, Inc., Ft. Wayne, IN, United
States (U.S. corporation)

	NUMBER	DATE
PATENT INFORMATION:	US 4634592	19870106
APPLICATION INFO.:	US 1985-725982	19850422 (6)
DOCUMENT TYPE:	Utility	
PRIMARY EXAMINER:	Yeung, George	
LEGAL REPRESENTATIVE:	Tilton, Fallon, Lungmus & Chestnut	
NUMBER OF CLAIMS:	5	
EXEMPLARY CLAIM:	1	
NUMBER OF DRAWINGS:	1 Drawing Figure(s); 1 Drawing Page(s)	
LINE COUNT:	197	

L1 ANSWER 33 OF 35 USPATFULL
ACCESSION NUMBER: 82:12534 USPATFULL
TITLE: Lactose-rich animal feed formulations and method of
feeding animals
INVENTOR(S): Austin, Paul R., Wilmington, DE, United States
Zikakis, John P., Townsend, DE, United States
Brine, Charles J., Skillman, NJ, United States
PATENT ASSIGNEE(S): University of Delaware, Newark, DE, United States (U.S.
corporation)

	NUMBER	DATE
PATENT INFORMATION:	US 4320150	19820316
APPLICATION INFO.:	US 1980-216027	19801212 (6)
RELATED APPLN. INFO.:	Continuation-in-part of Ser. No. US 1979-51850, filed on 25 Jun 1979, now abandoned	
DOCUMENT TYPE:	Utility	
PRIMARY EXAMINER:	Corbin, Arthur L.	
NUMBER OF CLAIMS:	10	
EXEMPLARY CLAIM:	1	
LINE COUNT:	458	

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

L1 ANSWER 34 OF 35 USPATFULL

ACCESSION NUMBER: 76:59881 USPATFULL

TITLE: Process for preparation of seasonings derived from animal meat

INVENTOR(S): Kurihara, Shinji, 7-8, 3-CHOME, Nishicho, Fukuyama, Hiroshima, Japan
Osazima, Kazuharu, 1037-8, Shirahagi, Mizunomicho, Fukuyama, Hiroshima, Japan

	NUMBER	DATE
PATENT INFORMATION:	US 3989847	19761102
APPLICATION INFO.:	US 1975-615889	19750923 (5)

	NUMBER	DATE
PRIORITY INFORMATION:	JP 1975-60079	19750520
DOCUMENT TYPE:	Utility	
PRIMARY EXAMINER:	Penland, R. B.	
LEGAL REPRESENTATIVE:	Browdy and Neimark	
NUMBER OF CLAIMS:	8	
EXEMPLARY CLAIM:	1	
LINE COUNT:	451	

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

L1 ANSWER 35 OF 35 USPATFULL

ACCESSION NUMBER: 71:27642 USPATFULL

TITLE: ARTIFICIAL PRODUCTION OF THE YOUNG OF COASTAL CRUSTACEA

INVENTOR(S): Kittaka, Ziro, 719, Higashikata, Ibusuki-shi
Kagoshima-ken Japan, JA, United States

	NUMBER	DATE
PATENT INFORMATION:	US 3601094	19710824
APPLICATION INFO.:	US 1968-777189	19681119 (4)

	NUMBER	DATE
PRIORITY INFORMATION:	JP 1967-75034	19671122
DOCUMENT TYPE:	Utility	
PRIMARY EXAMINER:	Medberry, Aldrich F.	
LEGAL REPRESENTATIVE:	Ernest F. Marmorek	
NUMBER OF CLAIMS:	7	
LINE COUNT:	691	

=> rd l1

RD IS NOT A RECOGNIZED COMMAND

The previous command name entered was not recognized by the system.
For a list of commands available to you in the current file, enter
"HELP COMMANDS" at an arrow prompt (=>).

=> s gram negative bacteria? and fish?

L7 1919 GRAM NEGATIVE BACTERIA? AND FISH?

=> l1 and l7

L1 IS NOT A RECOGNIZED COMMAND

The previous command name entered was not recognized by the system.
For a list of commands available to you in the current file, enter
"HELP COMMANDS" at an arrow prompt (=>).

=> s l1 and l7

Examples:

DELETE SAVED/Q - delete all saved queries
DELETE SAVED/A - delete all saved answer sets
DELETE SAVED/L - delete all saved L-number lists
DELETE SAVED - delete all saved queries, answer sets,
and L-number lists
DELETE SAVED/S - delete all SDI requests
DELETE SAVED/B - delete all batch requests
DELETE CLUSTER - delete all user-defined clusters
DELETE FORMAT - delete all user-defined display formats
DELETE FIELD - delete all user-defined search fields
DELETE SELECT - delete all E-numbers
DELETE HISTORY - delete all L-numbers and restart the
session at L1

To delete an entire multifile SDI request, enter DELETE and
the name of the request. To delete a component from the
multifile SDI, enter DELETE and the name of the component.

=> d l10 ibibi 1-44

'IBIBI' IS NOT A VALID FORMAT

In a multifile environment, a format can only be used if it is valid
in at least one of the files. Refer to file specific help messages
or the STNGUIDE file for information on formats available in
individual files.

REENTER DISPLAY FORMAT FOR ALL FILES (FILEDEFAULT):end

=> d l10 ibib 1-44

L10 ANSWER 1 OF 44 CABA COPYRIGHT 2001 CABI

ACCESSION NUMBER: 95:98811 CABA
DOCUMENT NUMBER: 952206876
TITLE: A survey of the incidence of Salmonella species and
enterobacteriaceae in poultry feeds and feed
components
AUTHOR: Veldman, A.; Vahl, H. A.; Borggreve, G. J.; Fuller,
D. C.
CORPORATE SOURCE: Institute for Animal Nutrition, 'De Schothorst', PO
Box 533, 8200 AM Lelystad, Netherlands.
SOURCE: Veterinary Record, (1995) Vol. 136, No. 7, pp.
169-172. 24 ref.
ISSN: 0042-4900
DOCUMENT TYPE: Journal
LANGUAGE: English

L10 ANSWER 2 OF 44 USPATFULL

ACCESSION NUMBER: 2001:29586 USPATFULL
TITLE: Cycloalkylaminomethylpyrrolidine derivatives
INVENTOR(S): Takemura, Makoto, Tokyo, Japan
Kimura, Youichi, Tokyo, Japan
Kawakami, Katsuhiko, Tokyo, Japan
Ohki, Hitoshi, Tokyo, Japan
PATENT ASSIGNEE(S): Daiichi Pharmaceutical Co., Ltd., Tokyo, Japan
(non-U.S. corporation)

	NUMBER	DATE
PATENT INFORMATION:	US 6194434	20010227
	WO 9740037	19971030
APPLICATION INFO.:	US 1998-171637	19981022 (9)
	WO 1997-JP1446	19970424
		19981022 PCT 371 date

19981022 PCT 102(e) date

	NUMBER	DATE
PRIORITY INFORMATION:	JP 1996-102334	19960324
DOCUMENT TYPE:	Utility	
PRIMARY EXAMINER:	Seaman, D. Margaret	
LEGAL REPRESENTATIVE:	Sughrue, Mion, Zinn, Macpeak & Seas, PLLC	
NUMBER OF CLAIMS:	8	
EXEMPLARY CLAIM:	1	
LINE COUNT:	728	

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

L10 ANSWER 3 OF 44 USPATFULL
ACCESSION NUMBER: 2000:24776 USPATFULL
TITLE: Optically active pyridonecarboxylic acid derivatives
INVENTOR(S): Hayakawa, Isao, Tokyo, Japan
Kimura, Youichi, Tokyo, Japan
PATENT ASSIGNEE(S): Daiichi Pharmaceutical Co., Ltd., Tokyo, Japan
(non-U.S. corporation)

	NUMBER	DATE
PATENT INFORMATION:	US 6031102	20000229
APPLICATION INFO.:	US 1998-55127	19980406 (9)
RELATED APPLN. INFO.:	Division of Ser. No. US 1995-477886, filed on 7 Jun 1995, now patented, Pat. No. US 5767127 which is a division of Ser. No. US 1993-142105, filed on 28 Oct 1993, now patented, Pat. No. US 5587386 which is a continuation of Ser. No. US 1990-610916, filed on 9 Nov 1990, now abandoned which is a continuation-in-part of Ser. No. US 1989-343567, filed on 27 Apr 1989, now abandoned	

	NUMBER	DATE
PRIORITY INFORMATION:	JP 1988-104625	19880427
	JP 1988-296984	19881124
DOCUMENT TYPE:	Utility	
PRIMARY EXAMINER:	Shah, Mukund J.	
ASSISTANT EXAMINER:	Coleman, Brenda	
LEGAL REPRESENTATIVE:	Sughrue, Mion, Zinn Macpeak & Seas, PLLC	
NUMBER OF CLAIMS:	5	
EXEMPLARY CLAIM:	1	
LINE COUNT:	2989	

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

L10 ANSWER 4 OF 44 USPATFULL
ACCESSION NUMBER: 1998:156913 USPATFULL
TITLE: Method for inhibiting microorganism growth
INVENTOR(S): Dobrogosz, Walter J., Raleigh, NC, United States
Lindgren, Sven E., Uppsala, Sweden
PATENT ASSIGNEE(S): Biogaia Biologics AB, Gothenburg, Sweden (non-U.S. corporation)

	NUMBER	DATE
PATENT INFORMATION:	US 5849289	19981215
APPLICATION INFO.:	US 1995-476630	19950607 (8)
RELATED APPLN. INFO.:	Division of Ser. No. US 1994-214014, filed on 16 Mar 1994, now patented, Pat. No. US 5439676 which is a continuation of Ser. No. US 1991-708800, filed on 30 May 1991, now abandoned which is a continuation of Ser. No. US 1988-268361, filed on 19 Sep 1988, now abandoned	

which is a continuation-in-part of Ser. No. US
1987-102830, filed on 22 Sep 1987, now abandoned which
is a continuation-in-part of Ser. No. US 1987-46027,
filed on 1 May 1987, now abandoned

DOCUMENT TYPE: Utility
PRIMARY EXAMINER: Marx, Irene
LEGAL REPRESENTATIVE: Barber, Lynn E.
NUMBER OF CLAIMS: 1
EXEMPLARY CLAIM: 1
NUMBER OF DRAWINGS: 34 Drawing Figure(s); 17 Drawing Page(s)
LINE COUNT: 1431
CAS INDEXING IS AVAILABLE FOR THIS PATENT.

L10 ANSWER 5 OF 44 USPATFULL

ACCESSION NUMBER: 1998:69045 USPATFULL
TITLE: Optically active pyridonecarboxylic acid derivatives
INVENTOR(S): Hayakawa, Isao, Tokyo, Japan
Kimura, Youichi, Tokyo, Japan
PATENT ASSIGNEE(S): Daiichi Pharmaceutical Co., Ltd., Tokyo, Japan
(non-U.S. corporation)

	NUMBER	DATE
PATENT INFORMATION:	US 5767127	19980616
APPLICATION INFO.:	US 1995-477886	19950607 (8)
RELATED APPLN. INFO.:	Division of Ser. No. US 1993-142105, filed on 28 Oct 1993, now patented, Pat. No. US 5587386 which is a continuation of Ser. No. US 1990-610916, filed on 9 Nov 1990, now abandoned which is a continuation-in-part of Ser. No. US 1989-343567, filed on 27 Apr 1989, now abandoned	

	NUMBER	DATE
PRIORITY INFORMATION:	JP 1988-104625	19880427
	JP 1988-296984	19881124
DOCUMENT TYPE:	Utility	
PRIMARY EXAMINER:	Grumbling, Matthew V.	
LEGAL REPRESENTATIVE:	Sughrue, Mion, Zinn, Macpeak & Seas, PLLC	
NUMBER OF CLAIMS:	27	
EXEMPLARY CLAIM:	1	
LINE COUNT:	3088	
CAS INDEXING IS AVAILABLE FOR THIS PATENT.		

L10 ANSWER 6 OF 44 USPATFULL

ACCESSION NUMBER: 1998:48005 USPATFULL
TITLE: Longterm antimicrobial activity obtained by sustained
release of hydrogen peroxide
INVENTOR(S): De Jong, Sylvia Josefine, Delft, Netherlands
De Haan, Ben Rudolf, Voorburg, Netherlands
Tan, Hong Sheng, Bleiswijk, Netherlands
PATENT ASSIGNEE(S): Gist-brocades, N.V., Netherlands (non-U.S. corporation)

	NUMBER	DATE
PATENT INFORMATION:	US 5747078	19980505
APPLICATION INFO.:	US 1995-375563	19950113 (8)
RELATED APPLN. INFO.:	Continuation of Ser. No. US 1993-969153, filed on 10 Feb 1993, now abandoned	

	NUMBER	DATE
PRIORITY INFORMATION:	EP 1991-201442	19910611
DOCUMENT TYPE:	Utility	

PRIMARY EXAMINER: Wong, Leslie
LEGAL REPRESENTATIVE: Morrison & Foerster LLP
NUMBER OF CLAIMS: 6
EXEMPLARY CLAIM: 1
NUMBER OF DRAWINGS: 19 Drawing Figure(s); 19 Drawing Page(s)
LINE COUNT: 596
CAS INDEXING IS AVAILABLE FOR THIS PATENT.

L10 ANSWER 7 OF 44 USPATFULL

ACCESSION NUMBER: 1998:45213 USPATFULL
TITLE: Thiazolo [3,2-a] quinoline and thiazolo [3,2-a] naphthyridine derivatives
INVENTOR(S): Jaetsch, Thomas, Koln, Germany, Federal Republic of
Hallenbach, Werner, Monheim, Germany, Federal Republic of
Himmler, Thomas, Odenthal, Germany, Federal Republic of
Bremm, Klaus-Dieter, Recklinghausen, Germany, Federal Republic of
Endermann, Rainer, Wuppertal, Germany, Federal Republic of
Pirro, Franz, Langenfeld, Germany, Federal Republic of
Stegemann, Michael, Kansas City, MO, United States
Wetzstein, Heinz-Georg, Leverkusen, Germany, Federal Republic of
PATENT ASSIGNEE(S): Bayer Aktiengesellschaft, Leverkusen, Germany, Federal Republic of (non-U.S. corporation)

	NUMBER	DATE
PATENT INFORMATION:	US 5744478	19980428
	WO 9606848	19960307
APPLICATION INFO.:	US 1997-793795	19970221 (8)
	WO 1995-EP3315	19950821
		19970221 PCT 371 date
		19970221 PCT 102(e) date

	NUMBER	DATE
PRIORITY INFORMATION:	DE 1994-4431122	19940901
DOCUMENT TYPE:	Utility	
PRIMARY EXAMINER:	Davis, Zinna Northington	
LEGAL REPRESENTATIVE:	Sprung Kramer Schaefer & Briscoe	
NUMBER OF CLAIMS:	7	
EXEMPLARY CLAIM:	1	
LINE COUNT:	628	

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

L10 ANSWER 8 OF 44 USPATFULL

ACCESSION NUMBER: 97:40482 USPATFULL
TITLE: Method for improving amoxicillin absorption in mammals by administering the amoxicillin to the mammal in combination with Rosa roxburghii, Artemisiae argyi folium and/or Brassica oleracea var. capitata L.
INVENTOR(S): Araki, Seiichi, Ibaraki, Japan
Suzuki, Mamoru, Ibaraki, Japan
Fujimoto, Masatoshi, Ibaraki, Japan
Ueki, Tadashi, Tokyo, Japan
PATENT ASSIGNEE(S): Eisai Co., Ltd., Tokyo, Japan (non-U.S. corporation)

	NUMBER	DATE
PATENT INFORMATION:	US 5628998	19970513
APPLICATION INFO.:	US 1995-438503	19950510 (8)
RELATED APPLN. INFO.:	Division of Ser. No. US 1995-390243, filed on 17 Feb	

1995 which is a division of Ser. No. US 1994-333079, filed on 1 Nov 1994, now patented, Pat. No. US 5556624 which is a division of Ser. No. US 1994-285980, filed on 4 Aug 1994, now abandoned which is a division of Ser. No. US 1993-133708, filed on 7 Oct 1993, now abandoned

	NUMBER	DATE
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PRIORITY INFORMATION:	JP 1992-291995	19921007
	JP 1992-291996	19921007
	JP 1993-144345	19930525
	JP 1993-206808	19930730
DOCUMENT TYPE:	Utility	
PRIMARY EXAMINER:	Wityshyn, Michael G.	
ASSISTANT EXAMINER:	Larson, Kristin K.	
LEGAL REPRESENTATIVE:	Flynn, Thiel, Boutell & Tanis, P.C.	
NUMBER OF CLAIMS:	15	
EXEMPLARY CLAIM:	1	
LINE COUNT:	1410	

L10 ANSWER 9 OF 44 USPATFULL

ACCESSION NUMBER: 97:35936 USPATFULL
 TITLE: Method for increasing egg production rate, egg weight or eggshell strength by administering a composition containing the plants *Rosa roxburghii*, *Artemisiae argyi* folium and *Brassica oleracea* var. *capitata* L.
 INVENTOR(S): Araki, Seiichi, Ibaraki, Japan
 Suzuki, Mamoru, Ibaraki, Japan
 Fujimoto, Masatoshi, Ibaraki, Japan
 Ueki, Tadashi, Tokyo, Japan
 PATENT ASSIGNEE(S): Eisai Co., Ltd., Tokyo, Japan (non-U.S. corporation)

	NUMBER	DATE
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PATENT INFORMATION:	US 5624671	19970429
APPLICATION INFO.:	US 1995-438494	19950510 (8)
RELATED APPLN. INFO.:	Division of Ser. No. US 1995-390243, filed on 17 Feb 1995 which is a division of Ser. No. US 1994-333079, filed on 1 Nov 1994, now patented, Pat. No. US 5556624 which is a division of Ser. No. US 1994-285980, filed on 4 Aug 1994, now abandoned which is a division of Ser. No. US 1993-133708, filed on 7 Oct 1993, now abandoned	

	NUMBER	DATE
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PRIORITY INFORMATION:	JP 1992-291995	19921007
	JP 1992-291996	19921007
	JP 1993-144345	19930525
	JP 1993-206808	19930730
DOCUMENT TYPE:	Utility	
PRIMARY EXAMINER:	Wityshyn, Michael G.	
ASSISTANT EXAMINER:	Larson, Kristin K.	
LEGAL REPRESENTATIVE:	Flynn, Thiel, Boutell & Tanis, P.C.	
NUMBER OF CLAIMS:	6	
EXEMPLARY CLAIM:	1	
LINE COUNT:	1390	

L10 ANSWER 10 OF 44 USPATFULL

ACCESSION NUMBER: 97:29470 USPATFULL
 TITLE: 1,9-bridged thiazolo[3,2-a]quinoline derivatives
 INVENTOR(S): Jaetsch, Thomas, K oln, Germany, Federal Republic of
 Hallenbach, Werner, Monheim, Germany, Federal Republic

of
Himmeler, Thomas, Odenthal, Germany, Federal Republic of
Mielke, Burkhard, Leverkusen, Germany, Federal Republic
of
Bremm, Klaus D., Recklinghausen, Germany, Federal
Republic of
Endermann, Rainer, Wuppertal, Germany, Federal Republic
of
Pirro, Franz, Langenfeld, Germany, Federal Republic of
Stegemann, Michael, Leverkusen, Germany, Federal
Republic of
Wetzstein, Heinz-Georg, Leverkusen, Germany, Federal
Republic of
Bayer Aktiengesellschaft, Leverkusen, Germany, Federal
Republic of (non-U.S. corporation)

PATENT ASSIGNEE(S):

	NUMBER	DATE
PATENT INFORMATION:	US 5618815	19970408
APPLICATION INFO.:	US 1995-444246	19950519 (8)

	NUMBER	DATE
PRIORITY INFORMATION:	DE 1994-4418510	19940527
DOCUMENT TYPE:	Utility	
PRIMARY EXAMINER:	Tsang, Cecilia	
ASSISTANT EXAMINER:	Coleman, Brenda	
LEGAL REPRESENTATIVE:	Sprung Horn Kramer & Woods	
NUMBER OF CLAIMS:	11	
EXEMPLARY CLAIM:	1	
LINE COUNT:	793	

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

L10 ANSWER 11 OF 44 USPATFULL
ACCESSION NUMBER: 96:118598 USPATFULL
TITLE: Optically active pyridonecarboxylic acid derivatives
INVENTOR(S): Hayakawa, Isao, Tokyo, Japan
Kimura, Youichi, Tokyo, Japan
PATENT ASSIGNEE(S): Daiichi Pharmaceutical Co., Ltd., Tokyo, Japan
(non-U.S. corporation)

	NUMBER	DATE
PATENT INFORMATION:	US 5587386	19961224
APPLICATION INFO.:	US 1993-142105	19931028 (8)
RELATED APPLN. INFO.:	Continuation of Ser. No. US 1990-610916, filed on 9 Nov 1990, now abandoned which is a continuation-in-part of Ser. No. US 1989-343567, filed on 27 Apr 1989, now abandoned	

	NUMBER	DATE
PRIORITY INFORMATION:	JP 1988-104625	19880427
	JP 1988-296984	19881124
DOCUMENT TYPE:	Utility	
PRIMARY EXAMINER:	Berch, Mark L.	
LEGAL REPRESENTATIVE:	Sughrue, Mion, Zinn, Macpeak & Seas	
NUMBER OF CLAIMS:	9	
EXEMPLARY CLAIM:	1	
LINE COUNT:	3036	

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

L10 ANSWER 12 OF 44 USPATFULL
ACCESSION NUMBER: 96:84908 USPATFULL

TITLE: Pharmaceutical composition comprising Rosa roxburghii, Artemisiae argyi folium and Brassica oleracea var. capitata L. used to reduce the symptoms of diarrhea

INVENTOR(S): Araki, Seiichi, Ibaraki, Japan
Suzuki, Mamoru, Ibaraki, Japan
Fujimoto, Masatoshi, Ibaraki, Japan
Ueki, Tadashi, Tokyo, Japan

PATENT ASSIGNEE(S): Eisai Co., Ltd., Tokyo, Japan (non-U.S. corporation)

	NUMBER	DATE
PATENT INFORMATION:	US 5556625	19960917
APPLICATION INFO.:	US 1995-433312	19950503 (8)
RELATED APPLN. INFO.:	Continuation of Ser. No. US 1993-133708, filed on 7 Oct 1993, now abandoned	

	NUMBER	DATE
PRIORITY INFORMATION:	JP 1992-291995	19921007
	JP 1992-291996	19921007
	JP 1993-144345	19930525
	JP 1993-206808	19930730

DOCUMENT TYPE: Utility

PRIMARY EXAMINER: Wityshyn, Michael G.

ASSISTANT EXAMINER: Larson, Kristin

LEGAL REPRESENTATIVE: Flynn, Thiel, Boutell & Tanis, P.C.

NUMBER OF CLAIMS: 4

EXEMPLARY CLAIM: 1

LINE COUNT: 1362

L10 ANSWER 13 OF 44 USPATFULL

ACCESSION NUMBER: 96:84907 USPATFULL

TITLE: Method of immunopotentiating and protecting an animal from E. coli infections using a combination of Rosa roxburghii, Artemisiae argyi folium and Brassica oleracea var. capitata L.

INVENTOR(S): Araki, Seiichi, Ibaraki, Japan
Suzuki, Mamoru, Ibaraki, Japan
Fujimoto, Masatoshi, Ibaraki, Japan
Ueki, Tadashi, Tokyo, Japan

PATENT ASSIGNEE(S): Eisai Co., Ltd., Tokyo, Japan (non-U.S. corporation)

	NUMBER	DATE
PATENT INFORMATION:	US 5556624	19960917
APPLICATION INFO.:	US 1994-333079	19941101 (8)
RELATED APPLN. INFO.:	Division of Ser. No. US 1994-285980, filed on 4 Aug 1994 which is a division of Ser. No. US 1993-133708, filed on 7 Oct 1993, now abandoned	

	NUMBER	DATE
PRIORITY INFORMATION:	JP 1992-291995	19921007
	JP 1992-291996	19921007
	JP 1993-144345	19930525
	JP 1993-206808	19930730

DOCUMENT TYPE: Utility

PRIMARY EXAMINER: Wityshyn, Michael G.

ASSISTANT EXAMINER: Larson, Kristin

LEGAL REPRESENTATIVE: Flynn, Thiel, Boutell & Tanis, P.C.

NUMBER OF CLAIMS: 5

EXEMPLARY CLAIM: 1

LINE COUNT: 1370

L10 ANSWER 14 OF 44 USPATFULL
ACCESSION NUMBER: 95:71134 USPATFULL
TITLE: Method for inhibiting microorganism growth
INVENTOR(S): Dobrogosz, Walter J., Raleigh, NC, United States
Lindgren, Sven E., Uppsala, Sweden
PATENT ASSIGNEE(S): Biogaia Biologics AB, Gothenburg, Sweden (non-U.S. corporation)

	NUMBER	DATE
PATENT INFORMATION:	US 5439678	19950808
APPLICATION INFO.:	US 1994-214014	19940316 (8)
RELATED APPLN. INFO.:	Continuation of Ser. No. US 1991-708800, filed on 30 May 1991, now abandoned which is a continuation of Ser. No. US 1988-268361, filed on 19 Sep 1988, now abandoned which is a continuation-in-part of Ser. No. US 1987-102830, filed on 22 Sep 1987, now abandoned which is a continuation-in-part of Ser. No. US 1987-46027, filed on 1 May 1987, now abandoned	
DOCUMENT TYPE:	Utility	
PRIMARY EXAMINER:	Marx, Irene	
LEGAL REPRESENTATIVE:	Olive & Olive	
NUMBER OF CLAIMS:	1	
EXEMPLARY CLAIM:	1	
NUMBER OF DRAWINGS:	34 Drawing Figure(s); 17 Drawing Page(s)	
LINE COUNT:	1382	

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

L10 ANSWER 15 OF 44 USPATFULL
ACCESSION NUMBER: 95:40898 USPATFULL
TITLE: Antibiotic reuterin
INVENTOR(S): Dobrogosz, Walter J., Raleigh, NC, United States
Lindgren, Sven E., Uppsala, Sweden
PATENT ASSIGNEE(S): Biogaia AB, Stockholm, Sweden (non-U.S. corporation)

	NUMBER	DATE
PATENT INFORMATION:	US 5413960	19950509
APPLICATION INFO.:	US 1993-97871	19930727 (8)
RELATED APPLN. INFO.:	Continuation of Ser. No. US 1991-671204, filed on 18 Mar 1991, now abandoned which is a division of Ser. No. US 1988-268361, filed on 19 Sep 1988, now abandoned which is a continuation-in-part of Ser. No. US 1987-102830, filed on 22 Sep 1987, now abandoned which is a continuation-in-part of Ser. No. US 1987-46027, filed on 1 May 1987, now abandoned	
DOCUMENT TYPE:	Utility	
PRIMARY EXAMINER:	Marx, Irene	
LEGAL REPRESENTATIVE:	Olive & Olive	
NUMBER OF CLAIMS:	1	
EXEMPLARY CLAIM:	1	
NUMBER OF DRAWINGS:	34 Drawing Figure(s); 17 Drawing Page(s)	
LINE COUNT:	1369	

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

L10 ANSWER 16 OF 44 USPATFULL
ACCESSION NUMBER: 94:106712 USPATFULL
TITLE: Mold control in forage
INVENTOR(S): Bernier, Roger L., Burlington, Canada
LaPointe, Anne-Marie M., Vancouver, Canada
PATENT ASSIGNEE(S): Zeneca Corp., North York, Canada (non-U.S. corporation)

NUMBER	DATE
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PATENT INFORMATION: US 5371011 19941206
APPLICATION INFO.: US 1992-860529 19920330 (7)
RELATED APPLN. INFO.: Continuation-in-part of Ser. No. US 1990-549863, filed
on 9 Jul 1990, now abandoned

	NUMBER	DATE
PRIORITY INFORMATION:	CA 1989-605196	19890710
DOCUMENT TYPE:	Utility	
PRIMARY EXAMINER:	Warden, Robert J.	
ASSISTANT EXAMINER:	Crawford, L. M.	
LEGAL REPRESENTATIVE:	Gowan, Gerald A.	
NUMBER OF CLAIMS:	29	
EXEMPLARY CLAIM:	1	
LINE COUNT:	640	

L10 ANSWER 17 OF 44 USPATFULL
ACCESSION NUMBER: 94:86316 USPATFULL
TITLE: Method of determining the presence of an antibiotic
produced by Lactobacillus reuteri
INVENTOR(S): Dobrogosz, Walter J., Raleigh, NC, United States
Lindgren, Sven E., Uppsala, Sweden
PATENT ASSIGNEE(S): Biogaia AB, Stockholm, Sweden (non-U.S. corporation)

	NUMBER	DATE
PATENT INFORMATION:	US 5352586	19941004
APPLICATION INFO.:	US 1991-670960	19910318 (7)
RELATED APPLN. INFO.:	Division of Ser. No. US 1988-268361, filed on 19 Sep 1988, now abandoned which is a continuation-in-part of Ser. No. US 1987-102830, filed on 22 Sep 1987, now abandoned which is a continuation-in-part of Ser. No. US 1987-46027, filed on 1 May 1987, now abandoned	
DOCUMENT TYPE:	Utility	
PRIMARY EXAMINER:	Marx, Irene	
LEGAL REPRESENTATIVE:	Olive & Olive	
NUMBER OF CLAIMS:	4	
EXEMPLARY CLAIM:	1	
NUMBER OF DRAWINGS:	34 Drawing Figure(s); 17 Drawing Page(s)	
LINE COUNT:	1360	

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

L10 ANSWER 18 OF 44 USPATFULL
ACCESSION NUMBER: 92:25248 USPATFULL
TITLE: Polycyclic ether antibiotic
INVENTOR(S): Cullen, Walter P., East Lyme, CT, United States
Maeda, Hiroshi, Chita, Japan
Ruddock, John C., Canterbury, England
Tone, Junsuke, Chita, Japan
PATENT ASSIGNEE(S): Pfizer Inc., New York, NY, United States (U.S.
corporation)

	NUMBER	DATE
PATENT INFORMATION:	US 5100785	19920331
APPLICATION INFO.:	US 1990-628798	19901217 (7)
RELATED APPLN. INFO.:	Division of Ser. No. US 1988-153187, filed on 8 Feb 1988, now patented, Pat. No. US 4992423 which is a division of Ser. No. US 1985-747613, filed on 21 Jun 1985, now patented, Pat. No. US 4746650, issued on 24 May 1988	

NUMBER	DATE
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PRIORITY INFORMATION: GB 1984-17785 19840712
DOCUMENT TYPE: Utility
PRIMARY EXAMINER: Brown, Johnnie R.
ASSISTANT EXAMINER: Webber, Pamela S.
LEGAL REPRESENTATIVE: Richardson, Peter C.; Lumb, J. Trevor; Brokke, Mervin E.
NUMBER OF CLAIMS: 6
EXEMPLARY CLAIM: 1
LINE COUNT: 795
CAS INDEXING IS AVAILABLE FOR THIS PATENT.

L10 ANSWER 19 OF 44 USPATFULL

ACCESSION NUMBER: 91:12931 USPATFULL
TITLE: Polycyclic ether antibiotics
INVENTOR(S): Cullen, Walter P., East Lyme, CT, United States
Maeda, Hiroshi, Aichi, Japan
Ruddock, John C., Canterbury, England
Tone, Junsuke, Chita, Japan
PATENT ASSIGNEE(S): Pfizer Inc., New York, NY, United States (U.S. corporation)

	NUMBER	DATE
PATENT INFORMATION:	US 4992423	19910212
APPLICATION INFO.:	US 1988-153187	19880208 (7)
RELATED APPLN. INFO.:	Division of Ser. No. US 1985-747613, filed on 21 Jun 1985, now patented, Pat. No. US 4746650, issued on 24 May 1988	

	NUMBER	DATE
PRIORITY INFORMATION:	GB 1984-17785	19840712
DOCUMENT TYPE:	Utility	
PRIMARY EXAMINER:	Rollins, John W.	
ASSISTANT EXAMINER:	Peselev, Elli	
LEGAL REPRESENTATIVE:	Richardson, Peter C.; Lumb, J. Trevor	
NUMBER OF CLAIMS:	5	
EXEMPLARY CLAIM:	3	
LINE COUNT:	791	
CAS INDEXING IS AVAILABLE FOR THIS PATENT.		

L10 ANSWER 20 OF 44 USPATFULL

ACCESSION NUMBER: 90:67748 USPATFULL
TITLE: Cyclopropyl-6,7,8-trifluoro-1,4-dihydro-4-oxo-3-quinoline carboxylic acid, intermediate for antibacterials
INVENTOR(S): Groche, Klaus, Odenthal, Germany, Federal Republic of
Petersen, Uwe, Leverkusen, Germany, Federal Republic of
Zeiler, Hans-Joachim, Velbert, Germany, Federal Republic of
Metzger, Karl G., Wuppertal, Germany, Federal Republic of
PATENT ASSIGNEE(S): Bayer Aktiengesellschaft, Leverkusen, Germany, Federal Republic of (non-U.S. corporation)

	NUMBER	DATE
PATENT INFORMATION:	US 4952695	19900828
APPLICATION INFO.:	US 1985-756469	19850718 (6)
RELATED APPLN. INFO.:	Division of Ser. No. US 1984-603480, filed on 24 Apr 1984, now patented, Pat. No. US 4556658	

NUMBER	DATE
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PRIORITY INFORMATION: DE 1983-3318145 19830518
DOCUMENT TYPE: Utility
PRIMARY EXAMINER: Rosen, Sam
LEGAL REPRESENTATIVE: Sprung, Horn, Kramer & Woods
NUMBER OF CLAIMS: 2
EXEMPLARY CLAIM: 1
LINE COUNT: 823
CAS INDEXING IS AVAILABLE FOR THIS PATENT.

L10 ANSWER 21 OF 44 USPATFULL

ACCESSION NUMBER: 90:32302 USPATFULL
TITLE: Antibiotic produced by fermentation
INVENTOR(S): Holdom, Kelvin S., Ramsgate, England
Ruddock, John C., Canterbury, England
Tone, Junsuke, Chita, Japan
Maeda, Hiroshi, Chita, Japan
Jefson, Martin R., Stonington, CT, United States
PATENT ASSIGNEE(S): Pfizer Inc., New York, NY, United States (U.S.
corporation)

	NUMBER	DATE
PATENT INFORMATION:	US 4920215	19900424
APPLICATION INFO.:	US 1987-133752	19871216 (7)

	NUMBER	DATE
PRIORITY INFORMATION:	GB 1987-513	19870109
DOCUMENT TYPE:	Utility	
PRIMARY EXAMINER:	Griffin, Ronald W.	
ASSISTANT EXAMINER:	White, Everett	
LEGAL REPRESENTATIVE:	Richardson, Peter C.; Lumb, J. Trevor; Blackwood, Robert K.	
NUMBER OF CLAIMS:	6	
EXEMPLARY CLAIM:	1	
LINE COUNT:	600	

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

L10 ANSWER 22 OF 44 USPATFULL

ACCESSION NUMBER: 89:32297 USPATFULL
TITLE: Antibiotic A80438
INVENTOR(S): Hamill, Robert L., Greenwood, IN, United States
Nakatsukasa, Walter M., Indianapolis, IN, United States
Yao, Raymond C., Carmel, IN, United States
PATENT ASSIGNEE(S): Eli Lilly and Company, Indianapolis, IN, United States
(U.S. corporation)

	NUMBER	DATE
PATENT INFORMATION:	US 4824863	19890425
APPLICATION INFO.:	US 1985-738320	19850528 (6)
DOCUMENT TYPE:	Utility	
PRIMARY EXAMINER:	Brown, Johnnie R.	
ASSISTANT EXAMINER:	Peselev, Elli	
LEGAL REPRESENTATIVE:	Harrison, Nancy J.; Whitaker, Leroy	
NUMBER OF CLAIMS:	31	
EXEMPLARY CLAIM:	1,25	
NUMBER OF DRAWINGS:	2 Drawing Figure(s); 2 Drawing Page(s)	
LINE COUNT:	1283	

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

L10 ANSWER 23 OF 44 USPATFULL

ACCESSION NUMBER: 88:32721 USPATFULL
TITLE: Polycyclic ether antibiotic

INVENTOR(S): Cullen, Walter P., East Lyme, CT, United States
Maeda, Hiroshi, Aichi, Japan
Ruddock, John C., Canterbury, England
Tone, Junsuke, Chita, Japan
PATENT ASSIGNEE(S): Pfizer Inc., New York, NY, United States (U.S.
corporation)

	NUMBER	DATE
PATENT INFORMATION:	US 4746650	19880524
APPLICATION INFO.:	US 1985-747613	19850621 (6)

	NUMBER	DATE
PRIORITY INFORMATION:	GB 1984-17785	19840712
DOCUMENT TYPE:	Utility	
PRIMARY EXAMINER:	Brown, J. R.	
ASSISTANT EXAMINER:	Peselev, Elli	
LEGAL REPRESENTATIVE:	Richardson, Peter C.; Akers, Lawrence C.; Lumb, J. Trevor	
NUMBER OF CLAIMS:	6	
EXEMPLARY CLAIM:	1,5	
LINE COUNT:	782	

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

L10 ANSWER 24 OF 44 USPATFULL
ACCESSION NUMBER: 86:34246 USPATFULL
TITLE: Animal feed compositions containing the antibiotic X-537A
INVENTOR(S): Berger, Julius, Passaic, NJ, United States
PATENT ASSIGNEE(S): Hoffmann-La Roche Inc., Nutley, NJ, United States (U.S. corporation)

	NUMBER	DATE
PATENT INFORMATION:	US 4594354	19860610
APPLICATION INFO.:	US 1981-307040	19810930 (6)
DISCLAIMER DATE:	19900306	
RELATED APPLN. INFO.:	Continuation of Ser. No. US 1978-960998, filed on 15 Nov 1978, now abandoned which is a continuation of Ser. No. US 1977-759223, filed on 13 Jan 1977, now abandoned which is a continuation of Ser. No. US 1975-616540, filed on 27 Sep 1975, now abandoned	
DOCUMENT TYPE:	Utility	
PRIMARY EXAMINER:	Waddell, Frederick E.	
LEGAL REPRESENTATIVE:	Saxe, Jon S.; Gould, George M.; Epstein, William H.	
NUMBER OF CLAIMS:	16	
EXEMPLARY CLAIM:	1	
LINE COUNT:	667	

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

L10 ANSWER 25 OF 44 USPATFULL
ACCESSION NUMBER: 85:70907 USPATFULL
TITLE: 7-Amino-1-cyclopropyl-6,8-difluoro-1,4-dihydro-4-oxo-quinoline-3-carboxylic acids and antibacterial agents containing these compounds
INVENTOR(S): Grohe, Klaus, Odenthal, Germany, Federal Republic of
Petersen, Uwe, Leverkusen, Germany, Federal Republic of
Zeiler, Hans-Joachim, Velbert, Germany, Federal Republic of
Metzger, Karl G., Wuppertal, Germany, Federal Republic of
PATENT ASSIGNEE(S): Bayer Aktiengesellschaft, Leverkusen, Germany, Federal Republic of (non-U.S. corporation)

	NUMBER	DATE
PATENT INFORMATION:	US 4556658	19851203
APPLICATION INFO.:	US 1984-603480	19840424 (6)

	NUMBER	DATE
PRIORITY INFORMATION:	DE 1983-3318145	19830518
DOCUMENT TYPE:	Utility	
PRIMARY EXAMINER:	Hollrah, Glennon H.	
ASSISTANT EXAMINER:	Turnipseed, James H.	
LEGAL REPRESENTATIVE:	Sprung Horn Kramer & Woods	
NUMBER OF CLAIMS:	17	
EXEMPLARY CLAIM:	1,15	
LINE COUNT:	946	

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

L10 ANSWER 26 OF 44 USPATFULL

ACCESSION NUMBER: 85:46087 USPATFULL

TITLE: Polycyclic ether antibiotic

INVENTOR(S): Celmer, Walter D., New London, CT, United States
Cullen, Walter P., East Lyme, CT, United States
Shibakawa, Riichiro, Handa, Japan
Tone, Junsuke, Chita, Japan

PATENT ASSIGNEE(S): Pfizer Inc., New York, NY, United States (U.S. corporation)

	NUMBER	DATE
PATENT INFORMATION:	US 4533553	19850806
APPLICATION INFO.:	US 1983-549912	19831109 (6)
RELATED APPLN. INFO.:	Division of Ser. No. US 1982-401234, filed on 23 Jul 1982, now patented, Pat. No. US 4431801 which is a division of Ser. No. US 1981-285264, filed on 20 Jul 1981, now patented, Pat. No. US 4361649	
DOCUMENT TYPE:	Utility	
PRIMARY EXAMINER:	Chan, Nicky	
ASSISTANT EXAMINER:	Faraci, C. Joseph	
LEGAL REPRESENTATIVE:	Connolly and Hutz	
NUMBER OF CLAIMS:	3	
EXEMPLARY CLAIM:	1	
NUMBER OF DRAWINGS:	2 Drawing Figure(s); 2 Drawing Page(s)	
LINE COUNT:	734	

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

L10 ANSWER 27 OF 44 USPATFULL

ACCESSION NUMBER: 84:9004 USPATFULL

TITLE: Polycyclic ether antibiotic

INVENTOR(S): Celmer, Walter D., New London, CT, United States
Cullen, Walter P., East Lyme, CT, United States
Shibakawa, Riichiro, Handa, Japan
Tone, Junsuke, Chita, Japan

PATENT ASSIGNEE(S): Pfizer Inc., New York, NY, United States (U.S. corporation)

	NUMBER	DATE
PATENT INFORMATION:	US 4431801	19840214
APPLICATION INFO.:	US 1982-401234	19820723 (6)
RELATED APPLN. INFO.:	Division of Ser. No. US 1981-285264, filed on 20 Jul 1981, now patented, Pat. No. US 4361649	
DOCUMENT TYPE:	Utility	
PRIMARY EXAMINER:	Torrence, Dolph H.	

ASSISTANT EXAMINER: Faroci, Ciro Joseph
LEGAL REPRESENTATIVE: Connolly and Hutz
NUMBER OF CLAIMS: 3
EXEMPLARY CLAIM: 1
NUMBER OF DRAWINGS: 2 Drawing Figure(s); 2 Drawing Page(s)
LINE COUNT: 729
CAS INDEXING IS AVAILABLE FOR THIS PATENT.

L10 ANSWER 28 OF 44 USPATFULL

ACCESSION NUMBER: 83:51972 USPATFULL
TITLE: Antibiotic preparations having increased effectiveness, processes for their manufacture and method for increasing the antibiotic action of antibiotics
INVENTOR(S): Tarcsay, Lajos, Grenzach-Wyhlen, Germany, Federal Republic of
Baschang, Gerhard, Bettingen, Switzerland
Hartmann, Albert, Grenzach, Germany, Federal Republic of
Stanek, Jaroslav, Birsfelden, Switzerland
PATENT ASSIGNEE(S): Ciba-Geigy Corporation, Ardsley, NY, United States (U.S. corporation)

	NUMBER	DATE
PATENT INFORMATION:	US 4414204	19831108
APPLICATION INFO.:	US 1981-226966	19810121 (6)
RELATED APPLN. INFO.:	Continuation-in-part of Ser. No. US 1980-172035, filed on 24 Jul 1980, now abandoned	

	NUMBER	DATE
PRIORITY INFORMATION:	CH 1979-6893	19790725
DOCUMENT TYPE:	Utility	
PRIMARY EXAMINER:	Hazel, Blondel	
LEGAL REPRESENTATIVE:	Feit, Irving N.	
NUMBER OF CLAIMS:	29	
EXEMPLARY CLAIM:	1	
LINE COUNT:	1201	

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

L10 ANSWER 29 OF 44 USPATFULL

ACCESSION NUMBER: 83:7027 USPATFULL
TITLE: Quinoxaline-2-yl ethenyl ketones
INVENTOR(S): Benko, Pal, Budapest, Hungary
Bozsing, Daniel, Budapest, Hungary
Gundel, Janos, Budapest, Hungary
Magyar, Karoly, Budapest, Hungary
PATENT ASSIGNEE(S): Egyt Gyogyszervegyeszeti Gyar, Budapest, Hungary (non-U.S. corporation)

	NUMBER	DATE
PATENT INFORMATION:	US 4373101	19830208
APPLICATION INFO.:	US 1981-269721	19810602 (6)

	NUMBER	DATE
PRIORITY INFORMATION:	HU 1980-1385	19800603
DOCUMENT TYPE:	Utility	
PRIMARY EXAMINER:	Killos, Paul J.	
LEGAL REPRESENTATIVE:	Ross, Karl F.	
NUMBER OF CLAIMS:	8	
EXEMPLARY CLAIM:	1	
LINE COUNT:	364	

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

L10 ANSWER 30 OF 44 USPATFULL

ACCESSION NUMBER: 82:58025 USPATFULL
TITLE: Polycyclic ether antibiotic
INVENTOR(S): Celmer, Walter D., New London, CT, United States
Cullen, Walter P., East Lyme, CT, United States
Shibakawa, Riichiro, Handa, Japan
Tone, Junsuke, Chita, Japan
PATENT ASSIGNEE(S): Pfizer Inc., Groton, CT, United States (U.S.
corporation)

	NUMBER	DATE
PATENT INFORMATION:	US 4361649	19821130
APPLICATION INFO.:	US 1981-285264	19810720 (6)
DOCUMENT TYPE:	Utility	
PRIMARY EXAMINER:	Kepplinger, Esther M.	
LEGAL REPRESENTATIVE:	Connolly and Hutz	
NUMBER OF CLAIMS:	3	
EXEMPLARY CLAIM:	1	
NUMBER OF DRAWINGS:	2 Drawing Figure(s); 2 Drawing Page(s)	
LINE COUNT:	710	

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

L10 ANSWER 31 OF 44 USPATFULL

ACCESSION NUMBER: 81:968 USPATFULL
TITLE: Growth increasing agents
INVENTOR(S): Ishihara, Eisuke, Miyanonishi, Japan
Yonehara, Hiroshi, Tokyo, Japan
Akasaki, Katsuyuki, Shimizu, Japan
Minowa, Masao, Shizuoka, Japan
Kobayashi, Katsumi, Shizuoka, Japan
PATENT ASSIGNEE(S): Kumiai Chemical Industry Co., Ltd., Tokyo, Japan
(non-U.S. corporation)

	NUMBER	DATE
PATENT INFORMATION:	US 4243661	19810106
APPLICATION INFO.:	US 1979-32253	19790423 (6)
RELATED APPLN. INFO.:	Continuation of Ser. No. US 1977-830773, filed on 6 Sep 1977, now abandoned which is a continuation of Ser. No. US 1976-736523, filed on 28 Oct 1976, now abandoned which is a continuation of Ser. No. US 1976-681198, filed on 28 Apr 1976, now abandoned	

	NUMBER	DATE
PRIORITY INFORMATION:	JP 1975-128910	19751028
DOCUMENT TYPE:	Utility	
PRIMARY EXAMINER:	Waddell, Frederick E.	
LEGAL REPRESENTATIVE:	Stevens, Davis, Miller & Mosher	
NUMBER OF CLAIMS:	6	
EXEMPLARY CLAIM:	1,6	
NUMBER OF DRAWINGS:	2 Drawing Figure(s); 1 Drawing Page(s)	
LINE COUNT:	571	

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

L10 ANSWER 32 OF 44 USPATFULL

ACCESSION NUMBER: 80:52655 USPATFULL
TITLE: Method for preparing multhiomycin
INVENTOR(S): Ishihara, Eisuke, Miyanonishi, Japan
Yonehara, Hiroshi, Tokyo, Japan
Akasaki, Katsuyuki, Shimizu, Japan

PATENT ASSIGNEE(S): Minowa, Masao, Shizuoka, Japan
Kobayashi, Katsumi, Shizuoka, Japan
Kumiai Chemical Industry Co., Ltd., Tokyo, Japan
(non-U.S. corporation)

	NUMBER	DATE
PATENT INFORMATION:	US 4229535	19801021
APPLICATION INFO.:	US 1978-892917	19780403 (5)
RELATED APPLN. INFO.:	Continuation of Ser. No. US 1976-681198, filed on 28 Apr 1976, now abandoned	

	NUMBER	DATE
PRIORITY INFORMATION:	JP 1975-128910	19751028
DOCUMENT TYPE:	Utility	
PRIMARY EXAMINER:	Warden, Robert J.	
LEGAL REPRESENTATIVE:	Stevens, Davis, Miller & Mosher	
NUMBER OF CLAIMS:	5	
EXEMPLARY CLAIM:	1	
NUMBER OF DRAWINGS:	2 Drawing Figure(s); 1 Drawing Page(s)	
LINE COUNT:	731	
CAS INDEXING IS AVAILABLE FOR THIS PATENT.		

L10 ANSWER 33 OF 44 USPATFULL
ACCESSION NUMBER: 78:21699 USPATFULL
TITLE: Cephalosporin derivatives
INVENTOR(S): Krohn, Wolfgang, Leverkusen, Germany, Federal Republic of
Metzger, Karl Georg, Wuppertal, Germany, Federal Republic of
Preiss, Michael, Wuppertal, Germany, Federal Republic of
Walkowiak, Michael, Cologne, Germany, Federal Republic of
PATENT ASSIGNEE(S): Bayer Aktiengesellschaft, Germany, Federal Republic of
(non-U.S. corporation)

	NUMBER	DATE
PATENT INFORMATION:	US 4086341	19780425
APPLICATION INFO.:	US 1976-707853	19760722 (5)
RELATED APPLN. INFO.:	Division of Ser. No. US 1975-602969, filed on 8 Aug 1975, now patented, Pat. No. US 4012518	

	NUMBER	DATE
PRIORITY INFORMATION:	DE 1974-2440268	19740822
DOCUMENT TYPE:	Utility	
PRIMARY EXAMINER:	Rizzo, Nicholas S.	
LEGAL REPRESENTATIVE:	Jacobs & Jacobs	
NUMBER OF CLAIMS:	13	
EXEMPLARY CLAIM:	1,9	
LINE COUNT:	881	

L10 ANSWER 34 OF 44 USPATFULL
ACCESSION NUMBER: 77:32861 USPATFULL
TITLE: Antibiotic
INVENTOR(S): Bauer, Klaus, Wuppertal, Germany, Federal Republic of
Frommer, Werner, Wuppertal, Germany, Federal Republic of
Kaufmann, Wilfried, Wuppertal, Germany, Federal Republic of
Metzger, Georg, Wuppertal, Germany, Federal Republic of

Scheer, Martin, Wuppertal, Germany, Federal Republic of
Schmidt, Delf, Wuppertal, Germany, Federal Republic of
Schroder, Theo, Wuppertal, Germany, Federal Republic of
Schafer, Dietmar, Marburg, Lahn, Germany, Federal
Republic of
PATENT ASSIGNEE(S): Bayer Aktiengesellschaft, Germany, Federal Republic of
(non-U.S. corporation)

	NUMBER	DATE
PATENT INFORMATION:	US 4031207	19770621
APPLICATION INFO.:	US 1976-661545	19760226 (5)

	NUMBER	DATE
PRIORITY INFORMATION:	DE 1975-2510161	19750308
DOCUMENT TYPE:	Utility	
PRIMARY EXAMINER:	Goldberg, Jerome D.	
NUMBER OF CLAIMS:	9	
EXEMPLARY CLAIM:	1	
NUMBER OF DRAWINGS:	4 Drawing Figure(s); 3 Drawing Page(s)	
LINE COUNT:	788	

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

L10 ANSWER 35 OF 44 USPATFULL
ACCESSION NUMBER: 77:31368 USPATFULL
TITLE: Nitro-.beta.-lactam antibiotics and processes for their
preparation and use
INVENTOR(S): Krohn, Wolfgang, Leverkusen, Germany, Federal Republic
of
Metzger, Karl Georg, Wuppertal, Germany, Federal
Republic of
Preiss, Michael, Wuppertal, Germany, Federal Republic
of
Walkowiak, Michael, Cologne, Germany, Federal Republic
of
PATENT ASSIGNEE(S): Bayer Aktiengesellschaft, Germany, Federal Republic of
(non-U.S. corporation)

	NUMBER	DATE
PATENT INFORMATION:	US 4029806	19770614
APPLICATION INFO.:	US 1976-707854	19760722 (5)

	NUMBER	DATE
PRIORITY INFORMATION:	DE 1974-2440268	19740822
DOCUMENT TYPE:	Utility	
PRIMARY EXAMINER:	Schwartz, Gerald A.	
NUMBER OF CLAIMS:	13	
EXEMPLARY CLAIM:	1	
LINE COUNT:	888	

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

L10 ANSWER 36 OF 44 USPATFULL
ACCESSION NUMBER: 77:27332 USPATFULL
TITLE: Coccidiostats
INVENTOR(S): Berger, Julius, Passaic, NJ, United States
PATENT ASSIGNEE(S): Hoffmann-La Roche Inc., Nutley, NJ, United States (U.S.
corporation)

	NUMBER	DATE
PATENT INFORMATION:	US 29244	19770531

APPLICATION INFO.: US 3719753 19730306 (Original)
US 1976-702307 19760702 (5)
US 1969-804974 19690306 (Original)
RELATED APPLN. INFO.: Continuation-in-part of Ser. No. US 1967-672729, filed
on 4 Oct 1967, now abandoned
DOCUMENT TYPE: Reissue
PRIMARY EXAMINER: Waddell, Frederick E.
LEGAL REPRESENTATIVE: Welt, Samuel L.; Leon, Bernard S.; Rosen, Gerald S.
NUMBER OF CLAIMS: 4
EXEMPLARY CLAIM: 1
LINE COUNT: 620
CAS INDEXING IS AVAILABLE FOR THIS PATENT.

L10 ANSWER 37 OF 44 USPATFULL
ACCESSION NUMBER: 77:12927 USPATFULL
TITLE: Nitro-.beta.-lactam antibiotics and processes for their
preparation and use
INVENTOR(S): Krohn, Wolfgang, Leverkusen, Germany, Federal Republic
of
Metzger, Karl Georg, Wuppertal, Germany, Federal
Republic of
Preiss, Michael, Wuppertal, Germany, Federal Republic
of
Walkowiak, Michael, Cologne, Germany, Federal Republic
of
PATENT ASSIGNEE(S): Bayer Aktiengesellschaft, Germany, Federal Republic of
(non-U.S. corporation)

	NUMBER	DATE
PATENT INFORMATION:	US 4012518	19770315
APPLICATION INFO.:	US 1975-602969	19750808 (5)

	NUMBER	DATE
PRIORITY INFORMATION:	DE 1974-2440268	19740822
DOCUMENT TYPE:	Utility	
PRIMARY EXAMINER:	Schwartz, Gerald A.	
NUMBER OF CLAIMS:	13	
EXEMPLARY CLAIM:	1	
LINE COUNT:	884	

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

L10 ANSWER 38 OF 44 USPATFULL
ACCESSION NUMBER: 77:808 USPATFULL
TITLE: Penicillins
INVENTOR(S): Schmidt, Gunter, Wuppertal, Germany, Federal Republic
of
Metzger, Karl Georg, Wuppertal, Germany, Federal
Republic of
PATENT ASSIGNEE(S): Bayer Aktiengesellschaft, Germany, Federal Republic of
(non-U.S. corporation)

	NUMBER	DATE
PATENT INFORMATION:	US 4001218	19770104
APPLICATION INFO.:	US 1975-547208	19750205 (5)
RELATED APPLN. INFO.:	Division of Ser. No. US 1973-419950,	filed on 29 Nov 1973, now Defensive Publication No.

	NUMBER	DATE
PRIORITY INFORMATION:	DE 1972-2260118	19721208
DOCUMENT TYPE:	Utility	

PRIMARY EXAMINER: Schwartz, Gerald A.
NUMBER OF CLAIMS: 16
EXEMPLARY CLAIM: 1
LINE COUNT: 2190
CAS INDEXING IS AVAILABLE FOR THIS PATENT.

L10 ANSWER 39 OF 44 USPATFULL
ACCESSION NUMBER: 76:52001 USPATFULL
TITLE: Penicillins
INVENTOR(S): Schmidt, Gunter, Wuppertal, Germany, Federal Republic
of
Metzger, Karl Georg, Wuppertal, Germany, Federal
Republic of
PATENT ASSIGNEE(S): Bayer Aktiengesellschaft, Germany, Federal Republic of
(non-U.S. corporation)

	NUMBER	DATE
PATENT INFORMATION:	US 3982011	19760921
APPLICATION INFO.:	US 1975-585890	19750611 (5)
RELATED APPLN. INFO.:	Division of Ser. No. US 1973-419950, filed on 29 Nov 1973, now patented, Pat. No. US 3931153	

	NUMBER	DATE
PRIORITY INFORMATION:	DE 1972-2260118	19721208
DOCUMENT TYPE:	Utility	
PRIMARY EXAMINER:	Schwartz, Gerald A.	
NUMBER OF CLAIMS:	21	
EXEMPLARY CLAIM:	1	
LINE COUNT:	2210	
CAS INDEXING IS AVAILABLE FOR THIS PATENT.		

L10 ANSWER 40 OF 44 USPATFULL
ACCESSION NUMBER: 76:888 USPATFULL
TITLE: Penicillins
INVENTOR(S): Schmidt, Gunter, Wuppertal, Germany, Federal Republic
of
Metzger, Karl Georg, Wuppertal, Germany, Federal
Republic of
PATENT ASSIGNEE(S): Bayer Aktiengesellschaft, Germany, Federal Republic of
(non-U.S. corporation)

	NUMBER	DATE
PATENT INFORMATION:	US 3931153	19760106
APPLICATION INFO.:	US 1973-419950	19731129 (5)

	NUMBER	DATE
PRIORITY INFORMATION:	DE 1972-2260118	19721208
DOCUMENT TYPE:	Utility	
PRIMARY EXAMINER:	Schwartz, Gerald A.	
NUMBER OF CLAIMS:	20	
EXEMPLARY CLAIM:	1	
LINE COUNT:	2077	
CAS INDEXING IS AVAILABLE FOR THIS PATENT.		

L10 ANSWER 41 OF 44 USPATFULL
ACCESSION NUMBER: 75:22713 USPATFULL
TITLE: Compositions containing 3-sulfanilamido-4,5-
dimethylisoxazole and a trimethoxybenzyl pyrimidine
INVENTOR(S): Rehm, Walter, Riehen, Switzerland
PATENT ASSIGNEE(S): Hoffmann-La Roche Inc., Nutley, NJ, United States (U.S.)

corporation)

	NUMBER	DATE
PATENT INFORMATION:	US 3881003	19750429
APPLICATION INFO.:	US 1973-340039	19730312 (5)

	NUMBER	DATE
PRIORITY INFORMATION:	CH 1972-3930	19720316
DOCUMENT TYPE:	Utility	
PRIMARY EXAMINER:	Rosen, Sam	
LEGAL REPRESENTATIVE:	Welt, Samuel L.; Saxe, Jon S.; Farley, William M.	
NUMBER OF CLAIMS:	12	
EXEMPLARY CLAIM:	1	
LINE COUNT:	360	

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

L10 ANSWER 42 OF 44 USPATFULL
ACCESSION NUMBER: 73:14262 USPATFULL
TITLE: SYNERGISTIC ANTIBIOTICS
INVENTOR(S): Konopka, Edward Alexander, Murray Hill, NJ, United States
Gelzer, Justus Melchior, Riehen, Switzerland
PATENT ASSIGNEE(S): Ciba-Geigy Corporation, Ardsley, NY, United States
(U.S. corporation)

	NUMBER	DATE
PATENT INFORMATION:	US 3725543	19730403
APPLICATION INFO.:	US 1971-206185	19711208 (5)
RELATED APPLN. INFO.:	Continuation-in-part of Ser. No. US 1970-81112, filed on 20 Oct 1970 which is a continuation-in-part of Ser. No. US 1970-13788, filed on 24 Feb 1970, now abandoned which is a continuation-in-part of Ser. No. US 1969-809967, filed on 24 Mar 1969, now patented, Pat. No. US 3644616	
DOCUMENT TYPE:	Utility	
PRIMARY EXAMINER:	Goldberg, Jerome D.	
LEGAL REPRESENTATIVE:	Joseph G. Kolodny et al.	
NUMBER OF CLAIMS:	6	
LINE COUNT:	401	

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

L10 ANSWER 43 OF 44 USPATFULL
ACCESSION NUMBER: 73:10267 USPATFULL
TITLE: SYNERGISTIC PREPARATION OF RIFAMPICIN AND PENICILLIN G
INVENTOR(S): Konopka, Edward Alexander, Murray Hill, NJ, United States
Gelzer, Justus Melchior, Summit, NJ, United States
PATENT ASSIGNEE(S): Ciba-Geigy Corporation, Ardsley, NY, United States
(U.S. corporation)

	NUMBER	DATE
PATENT INFORMATION:	US 3720764	19730313
APPLICATION INFO.:	US 1970-81112	19701015 (5)
RELATED APPLN. INFO.:	Continuation-in-part of Ser. No. US 1970-137788, filed on 24 Feb 1970, now abandoned which is a continuation-in-part of Ser. No. US 1969-809967, filed on 24 Mar 1969, now patented, Pat. No. US 3644616	
DOCUMENT TYPE:	Utility	
PRIMARY EXAMINER:	Goldberg, Jerome D.	
LEGAL REPRESENTATIVE:	Goldsmith; Harry; Kolodny; Joseph G.; Monaco; Mario A.	

NUMBER OF CLAIMS: 1
LINE COUNT: 310
CAS INDEXING IS AVAILABLE FOR THIS PATENT.

L10 ANSWER 44 OF 44 USPATFULL
ACCESSION NUMBER: 72:51391 USPATFULL
TITLE: FEED CONTAINING ENDURACIDIN
INVENTOR(S): Matsuoka, Toshiro, Suita, Japan
Takeda, Keinosuke, Kyoto, Japan
Goto, Minoru, Kyoto, Japan
Miayake, Akira, Nishinomiya, Japan
PATENT ASSIGNEE(S): Takeda Chemical Industries, Ltd., Higashi-ku, Osaka,
Japan (non-U.S. corporation)

	NUMBER	DATE
PATENT INFORMATION:	US 3697647	19721010
APPLICATION INFO.:	US 1968-700385	19680125 (4)

	NUMBER	DATE
PRIORITY INFORMATION:	JP 1967-4408	19670125
DOCUMENT TYPE:	Utility	
PRIMARY EXAMINER:	Goldberg, Jerome D.	
LEGAL REPRESENTATIVE:	Wenderoth, Lind & Ponack	
NUMBER OF CLAIMS:	9	
LINE COUNT:	909	

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

=> d hist

(FILE 'HOME' ENTERED AT 09:09:58 ON 24 MAY 2001)

FILE 'BIOSIS, CABA, CAPLUS, EMBASE, LIFESCI, MEDLINE, SCISEARCH,
USPATFULL, JAPIO' ENTERED AT 09:10:48 ON 24 MAY 2001

E FEEDSTUFF

E E3AND E8

E SOMA,G

L1 35 S CRUSTACEAN? AND FISH? (L) FEEDSTUFF?
L2 0 S GRAM NEGATIVE BACTERIA? AND L1
L3 0 S PANTOEIA AND L1
L4 0 S L1 AND IMMUNITY?(L)INFECTION?
L5 51314 S INFECTIOUS DISEASES
L6 0 S L1 AND L5
L7 1919 S GRAM NEGATIVE BACTERIA? AND FISH?
L8 0 S L1 AND L7
L9 11893 S FEEDSTUFF
L10 44 S L7 AND L9

=> s 11 and 110

L11 0 L1 AND L10

=> s 15 and 17

L12 193 L5 AND L7

=> s 19 and 112

L13 8 L9 AND L12

=> d 13 ibib 1-8

L3 HAS NO ANSWERS

'1-8 ' IS NOT A VALID SEARCH STATUS KEYWORD

Search status keywords:

NONE ---- Display only the number of postings.

STATUS -- Display statistics of the search.
ENTER SEARCH STATUS OPTION (NONE), STATUS, OR ?:d 113
'D 1130 ' IS NOT A VALID SEARCH STATUS KEYWORD
Search status keywords:
NONE ---- Display only the number of postings.
STATUS -- Display statistics of the search.
ENTER SEARCH STATUS OPTION (NONE), STATUS, OR ?:end

=> d 113 ibib 1-8

L13 ANSWER 1 OF 8 USPATFULL

ACCESSION NUMBER: 2001:29586 USPATFULL
TITLE: Cycloalkylaminomethylpyrrolidine derivatives
INVENTOR(S): Takemura, Makoto, Tokyo, Japan
Kimura, Youichi, Tokyo, Japan
Kawakami, Katsuhiko, Tokyo, Japan
Ohki, Hitoshi, Tokyo, Japan
PATENT ASSIGNEE(S): Daiichi Pharmaceutical Co., Ltd., Tokyo, Japan
(non-U.S. corporation)

	NUMBER	DATE	

PATENT INFORMATION:	US 6194434	20010227	
	WO 9740037	19971030	
APPLICATION INFO.:	US 1998-171637	19981022	(9)
	WO 1997-JP1446	19970424	
		19981022	PCT 371 date
		19981022	PCT 102(e) date

	NUMBER	DATE	

PRIORITY INFORMATION:	JP 1996-102334	19960324	
DOCUMENT TYPE:	Utility		
PRIMARY EXAMINER:	Seaman, D. Margaret		
LEGAL REPRESENTATIVE:	Sughrue, Mion, Zinn, Macpeak & Seas, PLLC		
NUMBER OF CLAIMS:	8		
EXEMPLARY CLAIM:	1		
LINE COUNT:	728		
CAS INDEXING IS AVAILABLE FOR THIS PATENT.			

L13 ANSWER 2 OF 8 USPATFULL

ACCESSION NUMBER: 2000:24776 USPATFULL
TITLE: Optically active pyridonecarboxylic acid derivatives
INVENTOR(S): Hayakawa, Isao, Tokyo, Japan
Kimura, Youichi, Tokyo, Japan
PATENT ASSIGNEE(S): Daiichi Pharmaceutical Co., Ltd., Tokyo, Japan
(non-U.S. corporation)

	NUMBER	DATE	

PATENT INFORMATION:	US 6031102	20000229	
APPLICATION INFO.:	US 1998-55127	19980406	(9)
RELATED APPLN. INFO.:	Division of Ser. No. US 1995-477886, filed on 7 Jun 1995, now patented, Pat. No. US 5767127 which is a division of Ser. No. US 1993-142105, filed on 28 Oct 1993, now patented, Pat. No. US 5587386 which is a continuation of Ser. No. US 1990-610916, filed on 9 Nov 1990, now abandoned which is a continuation-in-part of Ser. No. US 1989-343567, filed on 27 Apr 1989, now abandoned		

	NUMBER	DATE	

PRIORITY INFORMATION:	JP 1988-104625	19880427	

JP 1988-296984 19881124
DOCUMENT TYPE: Utility
PRIMARY EXAMINER: Shah, Mukund J.
ASSISTANT EXAMINER: Coleman, Brenda
LEGAL REPRESENTATIVE: Sughrue, Mion, Zinn Macpeak & Seas, PLLC
NUMBER OF CLAIMS: 5
EXEMPLARY CLAIM: 1
LINE COUNT: 2989
CAS INDEXING IS AVAILABLE FOR THIS PATENT.

L13 ANSWER 3 OF 8 USPATFULL

ACCESSION NUMBER: 1998:69045 USPATFULL
TITLE: Optically active pyridonecarboxylic acid derivatives
INVENTOR(S): Hayakawa, Isao, Tokyo, Japan
Kimura, Youichi, Tokyo, Japan
PATENT ASSIGNEE(S): Daiichi Pharmaceutical Co., Ltd., Tokyo, Japan
(non-U.S. corporation)

	NUMBER	DATE
PATENT INFORMATION:	US 5767127	19980616
APPLICATION INFO.:	US 1995-477886	19950607 (8)
RELATED APPLN. INFO.:	Division of Ser. No. US 1993-142105, filed on 28 Oct 1993, now patented, Pat. No. US 5587386 which is a continuation of Ser. No. US 1990-610916, filed on 9 Nov 1990, now abandoned which is a continuation-in-part of Ser. No. US 1989-343567, filed on 27 Apr 1989, now abandoned	

	NUMBER	DATE
PRIORITY INFORMATION:	JP 1988-104625	19880427
	JP 1988-296984	19881124
DOCUMENT TYPE:	Utility	
PRIMARY EXAMINER:	Grumbling, Matthew V.	
LEGAL REPRESENTATIVE:	Sughrue, Mion, Zinn, Macpeak & Seas, PLLC	
NUMBER OF CLAIMS:	27	
EXEMPLARY CLAIM:	1	
LINE COUNT:	3088	
CAS INDEXING IS AVAILABLE FOR THIS PATENT.		

L13 ANSWER 4 OF 8 USPATFULL

ACCESSION NUMBER: 97:40482 USPATFULL
TITLE: Method for improving amoxicillin absorption in mammals by administering the amoxicillin to the mammal in combination with Rosa roxburghii, Artemisiae argyi folium and/or Brassica oleracea var. capitata L.
INVENTOR(S): Araki, Seiichi, Ibaraki, Japan
Suzuki, Mamoru, Ibaraki, Japan
Fujimoto, Masatoshi, Ibaraki, Japan
Ueki, Tadashi, Tokyo, Japan
PATENT ASSIGNEE(S): Eisai Co., Ltd., Tokyo, Japan (non-U.S. corporation)

	NUMBER	DATE
PATENT INFORMATION:	US 5628998	19970513
APPLICATION INFO.:	US 1995-438503	19950510 (8)
RELATED APPLN. INFO.:	Division of Ser. No. US 1995-390243, filed on 17 Feb 1995 which is a division of Ser. No. US 1994-333079, filed on 1 Nov 1994, now patented, Pat. No. US 5556624 which is a division of Ser. No. US 1994-285980, filed on 4 Aug 1994, now abandoned which is a division of Ser. No. US 1993-133708, filed on 7 Oct 1993, now abandoned	

	NUMBER	DATE
	-----	-----
PRIORITY INFORMATION:	JP 1992-291995	19921007
	JP 1992-291996	19921007
	JP 1993-144345	19930525
	JP 1993-206808	19930730
DOCUMENT TYPE:	Utility	
PRIMARY EXAMINER:	Wityshyn, Michael G.	
ASSISTANT EXAMINER:	Larson, Kristin K.	
LEGAL REPRESENTATIVE:	Flynn, Thiel, Boutell & Tanis, P.C.	
NUMBER OF CLAIMS:	15	
EXEMPLARY CLAIM:	1	
LINE COUNT:	1410	

L13 ANSWER 5 OF 8 USPATFULL

ACCESSION NUMBER: 97:35936 USPATFULL

TITLE: Method for increasing egg production rate, egg weight or eggshell strength by administering a composition containing the plants *Rosa roxburghii*, *Artemisiae argyi* folium and *Brassica oleracea* var. capitata L.

INVENTOR(S): Araki, Seiichi, Ibaraki, Japan
Suzuki, Mamoru, Ibaraki, Japan
Fujimoto, Masatoshi, Ibaraki, Japan
Ueki, Tadashi, Tokyo, Japan

PATENT ASSIGNEE(S): Eisai Co., Ltd., Tokyo, Japan (non-U.S. corporation)

	NUMBER	DATE
	-----	-----
PATENT INFORMATION:	US 5624671	19970429
APPLICATION INFO.:	US 1995-438494	19950510 (8)
RELATED APPLN. INFO.:	Division of Ser. No. US 1995-390243, filed on 17 Feb 1995 which is a division of Ser. No. US 1994-333079, filed on 1 Nov 1994, now patented, Pat. No. US 5556624 which is a division of Ser. No. US 1994-285980, filed on 4 Aug 1994, now abandoned which is a division of Ser. No. US 1993-133708, filed on 7 Oct 1993, now abandoned	

	NUMBER	DATE
	-----	-----
PRIORITY INFORMATION:	JP 1992-291995	19921007
	JP 1992-291996	19921007
	JP 1993-144345	19930525
	JP 1993-206808	19930730
DOCUMENT TYPE:	Utility	
PRIMARY EXAMINER:	Wityshyn, Michael G.	
ASSISTANT EXAMINER:	Larson, Kristin K.	
LEGAL REPRESENTATIVE:	Flynn, Thiel, Boutell & Tanis, P.C.	
NUMBER OF CLAIMS:	6	
EXEMPLARY CLAIM:	1	
LINE COUNT:	1390	

L13 ANSWER 6 OF 8 USPATFULL

ACCESSION NUMBER: 96:118598 USPATFULL

TITLE: Optically active pyridonecarboxylic acid derivatives

INVENTOR(S): Hayakawa, Isao, Tokyo, Japan
Kimura, Youichi, Tokyo, Japan

PATENT ASSIGNEE(S): Daiichi Pharmaceutical Co., Ltd., Tokyo, Japan (non-U.S. corporation)

	NUMBER	DATE
	-----	-----
PATENT INFORMATION:	US 5587386	19961224

APPLICATION INFO.: US 1993-142105 19931028 (8)
RELATED APPLN. INFO.: Continuation of Ser. No. US 1990-610916, filed on 9 Nov 1990, now abandoned which is a continuation-in-part of Ser. No. US 1989-343567, filed on 27 Apr 1989, now abandoned

	NUMBER	DATE
PRIORITY INFORMATION:	JP 1988-104625	19880427
	JP 1988-296984	19881124
DOCUMENT TYPE:	Utility	
PRIMARY EXAMINER:	Berch, Mark L.	
LEGAL REPRESENTATIVE:	Sughrue, Mion, Zinn, Macpeak & Seas	
NUMBER OF CLAIMS:	9	
EXEMPLARY CLAIM:	1	
LINE COUNT:	3036	

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

L13 ANSWER 7 OF 8 USPATFULL

ACCESSION NUMBER: 96:84908 USPATFULL
TITLE: Pharmaceutical composition comprising Rosa roxburghii, Artemisiae argyi folium and Brassica oleracea var. capitata L. used to reduce the symptoms of diarrhea
INVENTOR(S): Araki, Seiichi, Ibaraki, Japan
Suzuki, Mamoru, Ibaraki, Japan
Fujimoto, Masatoshi, Ibaraki, Japan
Ueki, Tadashi, Tokyo, Japan
PATENT ASSIGNEE(S): Eisai Co., Ltd., Tokyo, Japan (non-U.S. corporation)

	NUMBER	DATE
PATENT INFORMATION:	US 5556625	19960917
APPLICATION INFO.:	US 1995-433312	19950503 (8)
RELATED APPLN. INFO.:	Continuation of Ser. No. US 1993-133708, filed on 7 Oct 1993, now abandoned	

	NUMBER	DATE
PRIORITY INFORMATION:	JP 1992-291995	19921007
	JP 1992-291996	19921007
	JP 1993-144345	19930525
	JP 1993-206808	19930730
DOCUMENT TYPE:	Utility	
PRIMARY EXAMINER:	Wityshyn, Michael G.	
ASSISTANT EXAMINER:	Larson, Kristin	
LEGAL REPRESENTATIVE:	Flynn, Thiel, Boutell & Tanis, P.C.	
NUMBER OF CLAIMS:	4	
EXEMPLARY CLAIM:	1	
LINE COUNT:	1362	

L13 ANSWER 8 OF 8 USPATFULL

ACCESSION NUMBER: 96:84907 USPATFULL
TITLE: Method of immunopotentiating and protecting an animal from E. coli infections using a combination of Rosa roxburghii, Artemisiae argyi folium and Brassica oleracea var. capitata L.
INVENTOR(S): Araki, Seiichi, Ibaraki, Japan
Suzuki, Mamoru, Ibaraki, Japan
Fujimoto, Masatoshi, Ibaraki, Japan
Ueki, Tadashi, Tokyo, Japan
PATENT ASSIGNEE(S): Eisai Co., Ltd., Tokyo, Japan (non-U.S. corporation)

NUMBER	DATE
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=> e vivrio
E1      161      VIVRIERES/BI
E2      23      VIVRIERS/BI
E3      6 --> VIVRIO/BI
E4      5      VIVRO/BI
E5      1      VIVRON/BI
E6      1      VIVRONIC/BI
E7      1      VIVRONT/BI
E8      32      VIVS/BI
E9      8      VIVSA/BI
E10     1      VIVSBIVO4/BI
E11     1      VIVSBO4/BI
E12     1      VIVSCOSITY/BI
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E5      1      VIVRON/BI
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E7      1      VIVRONT/BI
E8      32      VIVS/BI
E9      8      VIVSA/BI
E10     1      VIVSBIVO4/BI
E11     1      VIVSBO4/BI
E12     1      VIVSCOSITY/BI
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NO L# DEFINED
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L1      6 VIVRIO/BI
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=> d l1 ibib 1-6
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L1  ANSWER 1 OF 6  BIOSIS  COPYRIGHT 2001 BIOSIS
ACCESSION NUMBER:  1992:478056  BIOSIS
DOCUMENT NUMBER:   BA94:109431
TITLE:             ACTIVATION MECHANISM OF HUMAN HAGEMAN FACTOR-PLASMA
                   KALLIKREIN-KININ SYSTEM BY VIBRIO-VULNIFICUS
                   METALLOPROTEASE.
AUTHOR(S):         MIYOSHI S-I; SHINODA S
CORPORATE SOURCE:  FAC. PHARM. SCI., OKAYAMA UNIV., TSUSHIMA, OKAYAMA 700,
                   JPN.
SOURCE:            FEBS (FED EUR BIOCHEM SOC) LETT, (1992) 308 (3), 315-319.
                   CODEN: FEBLAL. ISSN: 0014-5793.
FILE SEGMENT:     BA; OLD
LANGUAGE:         English
```

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L1  ANSWER 2 OF 6  CAPLUS  COPYRIGHT 2001 ACS
ACCESSION NUMBER:  1999:252940  CAPLUS
DOCUMENT NUMBER:   131:72403
TITLE:             Preparation of oral microspheres carrying
                   Vivrio cholera vaccine and its target's
                   distribution
AUTHOR(S):         Zhang, Wenbin; Jia, Wenxiang; Liu, Cong; Zhang,
                   Zairong; Liu, Li; Deng, Xianmo; Li, Xionwei; Xiong,
                   Chengdong; Meng, Li; Zheng, Zhanxi
CORPORATE SOURCE:  School of Basic Medical Sciences, WCUMS, Chengdu,
                   610041, Peop. Rep. China
SOURCE:            Huaxi Yike Daxue Xuebao (1999), 30(1), 31-33
                   CODEN: HYDXET; ISSN: 0257-7712
```


PUBLISHER: Huaxi Yike Daxue
DOCUMENT TYPE: Journal
LANGUAGE: Chinese

L1 ANSWER 3 OF 6 CAPLUS COPYRIGHT 2001 ACS

ACCESSION NUMBER: 1997:133700 CAPLUS
Correction of: 1996:438197

DOCUMENT NUMBER: 126:141168
Correction of: 125:108218

TITLE: Characterization of a porin from the outer membrane of
Vibrio anguillarum

AUTHOR(S): Mimon, Marta; Mathes, Anton; Blanch, Anicet;
Engelhardt, Harald

CORPORATE SOURCE: Dep. Microbiol., Univ. Barcelona, Barcelona, 08028,
Spain

SOURCE: J. Bacteriol. (1996), 178(14), 4182-4188

CODEN: JOBAAY; ISSN: 0021-9193

PUBLISHER: American Society for Microbiology

DOCUMENT TYPE: Journal

LANGUAGE: English

L1 ANSWER 4 OF 6 CAPLUS COPYRIGHT 2001 ACS

ACCESSION NUMBER: 1993:553379 CAPLUS

DOCUMENT NUMBER: 119:153379

TITLE: Detection and differentiation of Vibrio species by
nucleic acid hybridization

PATENT ASSIGNEE(S): Amoco Corp., Japan

SOURCE: Jpn. Kokai Tokkyo Koho, 13 pp.

CODEN: JKXXAF

DOCUMENT TYPE: Patent

LANGUAGE: Japanese

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 05137600	A2	19930601	JP 1992-123618	19920515
US 5582993	A	19961210	US 1995-402964	19950310
PRIORITY APPLN. INFO.:			US 1991-700785	19910515
			US 1993-138862	19931019

L1 ANSWER 5 OF 6 MEDLINE

ACCESSION NUMBER: 92371652 MEDLINE

DOCUMENT NUMBER: 92371652 PubMed ID: 1380471

TITLE: Activation mechanism of human Hageman factor-plasma
kallikrein-kinin system by Vibrio vulnificus
metalloprotease.

AUTHOR: Miyoshi S; Shinoda S

CORPORATE SOURCE: Faculty of Pharmaceutical Sciences, Okayama University,
Japan.

SOURCE: FEBS LETTERS, (1992 Aug 24) 308 (3) 315-9.
Journal code: EUH; 0155157. ISSN: 0014-5793.

PUB. COUNTRY: Netherlands
Journal; Article; (JOURNAL ARTICLE)

LANGUAGE: English

FILE SEGMENT: Priority Journals

ENTRY MONTH: 199209

ENTRY DATE: Entered STN: 19921009

Last Updated on STN: 20000303

Entered Medline: 19920923

L1 ANSWER 6 OF 6 USPATFULL

ACCESSION NUMBER: 2000:9939 USPATFULL

TITLE: Methods for controlling gram negative bacteria in

mammals
INVENTOR(S): Berkowitz, Barry, Framingham, MA, United States
Sachs, George, Encino, CA, United States
Blackburn, Chris, Natick, MA, United States
PATENT ASSIGNEE(S): Millennium Pharmaceuticals, Inc., Cambridge, MA, United States (U.S. corporation)

	NUMBER	DATE
PATENT INFORMATION:	US 6017950	20000125
APPLICATION INFO.:	US 1997-905985	19970805 (8)
DOCUMENT TYPE:	Utility	
PRIMARY EXAMINER:	Weddington, Kevin E.	
LEGAL REPRESENTATIVE:	Lahive & Cockfield, LLP	
NUMBER OF CLAIMS:	36	
EXEMPLARY CLAIM:	1	
LINE COUNT:	1691	

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LAST RELOADED: May 18, 2001 (20010518/UP).

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PATENT INFORMATION: US 5556624 19960917
 APPLICATION INFO.: US 1994-333079 19941101 (8)
 RELATED APPLN. INFO.: Division of Ser. No. US 1994-285980, filed on 4 Aug
 1994 which is a division of Ser. No. US 1993-133708,
 filed on 7 Oct 1993, now abandoned

	NUMBER	DATE
PRIORITY INFORMATION:	JP 1992-291995	19921007
	JP 1992-291996	19921007
	JP 1993-144345	19930525
	JP 1993-206808	19930730
DOCUMENT TYPE:	Utility	
PRIMARY EXAMINER:	Wityshyn, Michael G.	
ASSISTANT EXAMINER:	Larson, Kristin	
LEGAL REPRESENTATIVE:	Flynn, Thiel, Boutell & Tanis, P.C.	
NUMBER OF CLAIMS:	5	
EXEMPLARY CLAIM:	1	
LINE COUNT:	1370	

=> s l1 and l10
 L14 0 L1 AND L10

=> d hist

(FILE 'HOME' ENTERED AT 09:09:58 ON 24 MAY 2001)

FILE 'BIOSIS, CABA, CAPLUS, EMBASE, LIFESCI, MEDLINE, SCISEARCH,
 USPATFULL, JAPIO' ENTERED AT 09:10:48 ON 24 MAY 2001

E FEEDSTUFF
 E E3AND E8
 E SOMA,G

L1	35	S CRUSTACEAN? AND FISH? (L) FEEDSTUFF?
L2	0	S GRAM NEGATIVE BACTERIA? AND L1
L3	0	S PANTOEIA AND L1
L4	0	S L1 AND IMMUNITY?(L)INFECTION?
L5	51314	S INFECTIOUS DISEASES
L6	0	S L1 AND L5
L7	1919	S GRAM NEGATIVE BACTERIA? AND FISH?
L8	0	S L1 AND L7
L9	11893	S FEEDSTUFF
L10	44	S L7 AND L9
L11	0	S L1 AND L10
L12	193	S L5 AND L7
L13	8	S L9 AND L12
L14	0	S L1 AND L10

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 FIELD CODE - 'AND' OPERATOR ASSUMED 'L1 (L) L61'
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 FIELD CODE - 'AND' OPERATOR ASSUMED 'L2 (L) L62'
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 FIELD CODE - 'AND' OPERATOR ASSUMED 'L4 (L) L64'
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 FIELD CODE - 'AND' OPERATOR ASSUMED 'L6 (L) L66'
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FIELD CODE - 'AND' OPERATOR ASSUMED 'L8 (L) L68'
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FIELD CODE - 'AND' OPERATOR ASSUMED 'L9 (L) L69'
L15 0 L1 (L) L7

=> s pantoea agglomerans
L16 740 PANTOEAE AGGLOMERANS

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L17 0 L1 AND L16

=> s l7 and l17
L18 0 L7 AND L17

=> s l9 and l17
L19 0 L9 AND L17

=> s l12 and l17
L20 0 L12 AND L17

=> s l17 and fish?
L21 0 L17 AND FISH?

=> s l17 and crustacean?
L22 0 L17 AND CRUSTACEAN?

=> s l17 and immunity
L23 0 L17 AND IMMUNITY

=> s l17 and fish
L24 0 L17 AND FISH

=> s immunity and fish
L25 4194 IMMUNITY AND FISH

=> s l17 and l25
L26 0 L17 AND L25

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FILE CONTAINS CURRENT INFORMATION.
LAST RELOADED: Mar 30, 2001 (20010330/UP).

=> s feedstuff? and immunity

0 FEEDSTUFF?

0 IMMUNITY

L4 0 FEEDSTUFF? AND IMMUNITY

=> s lipopolysaccharide and fishfeedstuff

0 LIPOPOLYSACCHARIDE

0 FISHFEEDSTUFF

L5 0 LIPOPOLYSACCHARIDE AND FISHFEEDSTUFF

=> s crustacean? and feedstuff

0 CRUSTACEAN?

0 FEEDSTUFF

L6 0 CRUSTACEAN? AND FEEDSTUFF

=> s infection? and fish and feedstuff

1 INFECTION?

5 FISH

0 FEEDSTUFF

L7 0 INFECTION? AND FISH AND FEEDSTUFF

=> s immunity and fish

0 IMMUNITY

5 FISH

L8 0 IMMUNITY AND FISH

=> s l7 and l8

L9 0 L7 AND L8

=> s fish feed and infection

5 FISH

0 FEED

0 FISH FEED

(FISH(W) FEED)

1 INFECTION

L10 0 FISH FEED AND INFECTION

=> s l8 and l10

L11 0 L8 AND L10

=>

=> s feedstuff additive for fish
L2 0 FEEDSTUFF ADDITIVE FOR FISH

=> s pantoea and fish
L3 9 PANTOEAL AND FISH

=> d ibib 1-9

L3 ANSWER 1 OF 9 CABA COPYRIGHT 2001 CABI
ACCESSION NUMBER: 1999:140457 CABA
DOCUMENT NUMBER: 992213311
TITLE: Bacterial flora in fry and fingerlings of Indian
major carp Rohu (Labeo rohita) in India
AUTHOR: Das, B. K.; Mukherjee, S. C.
CORPORATE SOURCE: Aquatic Animal Health Division, Central Institute of
Freshwater Aquaculture, Bhubaneswar, Orissa, India.
SOURCE: Journal of Aquaculture in the Tropics, (1999) Vol. 14, No. 2, pp. 165-172. 20 ref.
ISSN: 0970-0846
DOCUMENT TYPE: Journal
LANGUAGE: English

L3 ANSWER 2 OF 9 CABA COPYRIGHT 2001 CABI
ACCESSION NUMBER: 1999:122103 CABA
DOCUMENT NUMBER: 991410245
TITLE: Comparison of the microflora isolated from spoiled
cold-smoked salmon from three smokehouses
AUTHOR: Hansen, L. T.; Huss, H. H.
CORPORATE SOURCE: Danish Institute for Fisheries Research, Department
of Seafood Research, Building 221, Technical
University, DK-2800 Lyngby, Denmark.
SOURCE: Food Research International, (1998) Vol. 31, No. 10,
pp. 703-711. 38 ref.
ISSN: 0963-9969
DOCUMENT TYPE: Journal
LANGUAGE: English

L3 ANSWER 3 OF 9 CAPLUS COPYRIGHT 2001 ACS
ACCESSION NUMBER: 1997:180122 CAPLUS
DOCUMENT NUMBER: 126:268169
TITLE: Changes of blood and urine parameters and microflora
in the gastrointestinal tract of carp exposed to
diluted sewage for a short period
AUTHOR(S): Kakuta, I.; Takasaki, M.; Sato, T.; Ishii, K.
CORPORATE SOURCE: Faculty of Science and Engineering, Department of
Biotechnology, Senshu University of Ishinomaki,
Ishinomaki, 986, Japan
SOURCE: Int. J. PIXE (1996), Volume Date 1995, 5(4), 221-233
CODEN: IJPXET; ISSN: 0129-0835
PUBLISHER: World Scientific
DOCUMENT TYPE: Journal
LANGUAGE: English

L3 ANSWER 4 OF 9 LIFESCI COPYRIGHT 2001 CSA
ACCESSION NUMBER: 2000:97486 LIFESCI
TITLE: Enhancement of disease resistance against penaeid acute
viraemia and induction of virus-inactivating activity in
haemolymph of kuruma shrimp, Penaeus japonicus, by oral
administration of **Pantoea** agglomerans
lipopolysaccharide (LPS)

AUTHOR: Takahashi, Y.; Kondo, M.; Itami, T.*; Honda, T.; Inagawa, H.; Nishizawa, T.; Soma, G.; Yokomizo, Y.
CORPORATE SOURCE: National Fisheries University, Shimonoseki, 759-6595, Yamaguchi, Japan; E-mail: itamit@fish-u.ac.jp
SOURCE: Fish & Shellfish Immunology [Fish Shellfish Immunol.], (20000800) vol. 10, no. 6, pp. 555-558, ISSN: 1050-4648.
DOCUMENT TYPE: Journal
FILE SEGMENT: V; F
LANGUAGE: English
SUMMARY LANGUAGE: English

L3 ANSWER 5 OF 9 USPATFULL

ACCESSION NUMBER: 2001:44436 USPATFULL
TITLE: Maize RS81 promoter and methods for use thereof
INVENTOR(S): McElroy, David, Palo Alto, CA, United States
Orozco, Jr., Emil M., West Grove, PA, United States
Laccetti, Lucille B., Groton, CT, United States
PATENT ASSIGNEE(S): Dekalb Genetics Corporation, Mystic, CT, United States (U.S. corporation)

	NUMBER	DATE
PATENT INFORMATION:	US 6207879	20010327
APPLICATION INFO.:	US 1999-312266	19990514 (9)
DOCUMENT TYPE:	Utility	
PRIMARY EXAMINER:	Fox, David T.	
ASSISTANT EXAMINER:	Ibrahim, Medina A.	
LEGAL REPRESENTATIVE:	Fulbright & Jaworski LLP	
NUMBER OF CLAIMS:	66	
EXEMPLARY CLAIM:	16	
NUMBER OF DRAWINGS:	5 Drawing Figure(s); 5 Drawing Page(s)	
LINE COUNT:	5244	

L3 ANSWER 6 OF 9 USPATFULL

ACCESSION NUMBER: 2001:29786 USPATFULL
TITLE: Maize RS324 promoter and methods for use thereof
INVENTOR(S): McElroy, David, Palo Alto, CA, United States
Orozco, Jr., Emil M., West Grove, PA, United States
Laccetti, Lucille B., Groton, CT, United States
PATENT ASSIGNEE(S): Dekalb Genetics Corp., Mystic, CT, United States (U.S. corporation)

	NUMBER	DATE
PATENT INFORMATION:	US 6194636	20010227
APPLICATION INFO.:	US 1999-312285	19990514 (9)
DOCUMENT TYPE:	Utility	
PRIMARY EXAMINER:	Fox, David T.	
ASSISTANT EXAMINER:	Ibrahim, Medina A.	
LEGAL REPRESENTATIVE:	Fulbright & Jaworski LLP	
NUMBER OF CLAIMS:	68	
EXEMPLARY CLAIM:	18	
NUMBER OF DRAWINGS:	8 Drawing Figure(s); 6 Drawing Page(s)	
LINE COUNT:	5182	

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

L3 ANSWER 7 OF 9 USPATFULL

ACCESSION NUMBER: 2000:142142 USPATFULL
TITLE: Enzymatic process for the manufacture of ascorbic acid, 2-keto-L-gulonic acid and esters of 2-keto-L-gulonic acid

INVENTOR(S): Hubbs, John Clark, Kingsport, TN, United States
PATENT ASSIGNEE(S): Eastman Chemical Company, Kingsport, TN, United States
(U.S. corporation)

	NUMBER	DATE
PATENT INFORMATION:	US 6136575	20001024
APPLICATION INFO.:	US 1998-146661	19980903 (9)
RELATED APPLN. INFO.:	Division of Ser. No. US 1997-845295, filed on 25 Apr 1997, now patented, Pat. No. US 5817490	

	NUMBER	DATE
PRIORITY INFORMATION:	US 1996-17879	19960517 (60)
DOCUMENT TYPE:	Utility	
PRIMARY EXAMINER:	Slobodyansky, Elizabeth	
LEGAL REPRESENTATIVE:	Tubach, Cheryl J.; Gwinnell, Harry J.	
NUMBER OF CLAIMS:	4	
EXEMPLARY CLAIM:	1	
LINE COUNT:	1085	
CAS INDEXING IS AVAILABLE FOR THIS PATENT.		

L3 ANSWER 8 OF 9 USPATFULL

ACCESSION NUMBER: 2000:15495 USPATFULL
TITLE: Enzymatic process for the manufacture of ascorbic acid, 2-keto-L-gulonic acid and esters of 2-keto-L-gulonic acid
INVENTOR(S): Hubbs, John Clark, Kingsport, TN, United States
PATENT ASSIGNEE(S): Eastman Chemical Company, Kingsport, TN, United States
(U.S. corporation)

	NUMBER	DATE
PATENT INFORMATION:	US 6022719	20000208
APPLICATION INFO.:	US 1998-140933	19980827 (9)
RELATED APPLN. INFO.:	Division of Ser. No. US 1997-845295, filed on 25 Apr 1997, now patented, Pat. No. US 5817490	

	NUMBER	DATE
PRIORITY INFORMATION:	US 1996-17879	19960517 (60)
DOCUMENT TYPE:	Utility	
PRIMARY EXAMINER:	Lilling, Herbert J.	
LEGAL REPRESENTATIVE:	Tubach, Cheryl J.; Gwinnell, Harry J.	
NUMBER OF CLAIMS:	4	
EXEMPLARY CLAIM:	1	
LINE COUNT:	1098	
CAS INDEXING IS AVAILABLE FOR THIS PATENT.		

L3 ANSWER 9 OF 9 USPATFULL

ACCESSION NUMBER: 1998:122245 USPATFULL
TITLE: Enzymatic process for the manufacture of ascorbic acid 2-keto-L-gulonic acid and esters of 2-keto-L-gulonic acid
INVENTOR(S): Hubbs, John Clark, Kingsport, TN, United States
PATENT ASSIGNEE(S): Eastman Chemical Company, Kingsport, TN, United States
(U.S. corporation)

	NUMBER	DATE
PATENT INFORMATION:	US 5817490	19981006
APPLICATION INFO.:	US 1997-845295	19970425 (8)

	NUMBER	DATE
PRIORITY INFORMATION:	US 1996-17879	19960517 (60)
DOCUMENT TYPE:	Utility	
PRIMARY EXAMINER:	Wax, Robert A.	
ASSISTANT EXAMINER:	Slobodyansky, Elizabeth	
LEGAL REPRESENTATIVE:	Tubach, Cheryl J.; Gwinnell, Harry J.	
NUMBER OF CLAIMS:	21	
EXEMPLARY CLAIM:	1	
LINE COUNT:	1196	

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

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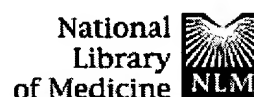
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☐ 1: Dis Aquat Organ 2000 Aug 31;42(2):83-9

Related Articles, Books

Quasi-immune response of *Penaeus japonicus* to penaeid rod-shaped DNA virus (PRDV).

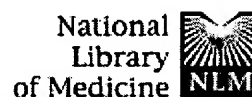
Venegas CA, Nonaka L, Mushiake K, Nishizawa T, Murog K.

Laboratory of Fish Pathology, Faculty of Applied Biological Science, Hiroshima University, Japan.

A quasi-immune response was demonstrated in kuruma prawn *Penaeus japonicus* infected naturally or experimentally with PRDV (penaeid rod-shaped DNA virus, also called white spot syndrome virus or WSSV), the causative agent of PAV (penaeid acute viremia). In the first step of this study, natural survivors 4 mo after a PAV outbreak demonstrated 94 % relative percent survival (RPS) upon experimental PRDV challenge. Mortalities after challenge were confirmed by PRDV detection to be due to PAV using a PCR method. In the second step, experimental PAV survivors were produced by intramuscular (IM) injection of PRDV into naive shrimp subsequently reared collectively in a tank (A group) or individually in chamber units (B group). Survival was 41 and 90% in the A and B groups, respectively. A subsequent IM re-challenge of these PRDV survivor groups with PRDV made 32 d after the first challenge revealed a protective response with high RPS of 77 and 64%, respectively. These high survival rates suggested that PAV survivors (natural or experimental) were able to resist PRDV infection and that the resistance was not due to selection of naturally resistant shrimp during a PAV outbreak, but due to enhancement of an immune-like system (quasi-immune response) after exposure to PRDV. No PRDV neutralizing activity was revealed in the serum of the 4 mo natural survivors of the PRDV outbreak. However, it was found in their serum 17 d after they had been experimentally challenged with PRDV.

PMID: 11023247 [PubMed - indexed for MEDLINE]

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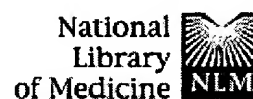
☐ 1: J Invertebr Pathol 1983 Jul;42(1):62-70[Related Articles, Books](#)**Infectious hypodermal and hematopoietic necrosis, a newly recognized virus disease of penaeid shrimp.****Lightner DV, Redman RM, Bell TA.**

PMID: 6886467 [PubMed - indexed for MEDLINE]

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☐ 1: Fish Shellfish Immunol 2000 Aug;10(6):555-8[Related Articles, Books, LinkOut](#)

Enhancement of disease resistance against penaeid acute viraemia and induction of virus-inactivating activity in haemolymph of kuruma shrimp, *Penaeus japonicus*, by oral administration of *Pantoea agglomerans* lipopolysaccharide (LPS).

Takahashi Y, Kondo M, Itami T, Honda T, Inagawa H, Nishizawa T, Soma GI, Yokomizo Y.

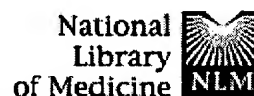
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National Fisheries University, Shimonoseki, Yamaguchi, Japan.

PMID: 11016589 [PubMed - indexed for MEDLINE]

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☐ 1: Appl Environ Microbiol 2001 Jan;67(1):284-92

Related Articles, Books, LinkOut

[Full text article at
aem.asm.org](http://aem.asm.org)**Pantoea agglomerans strain EH318 produces two antibiotics that inhibit *Erwinia amylovora* in vitro.****Wright SA, Zumoff CH, Schneider L, Beer SV.**

Department of Plant Pathology, Cornell University, Ithaca, New York 14853, USA.

Pantoea agglomerans (synonym: *Erwinia herbicola*) strain Eh318 produces through antibiosis a complex zone of inhibited growth in an overlay seeded with *Erwinia amylovora*, the causal agent of fire blight. This zone is caused by two antibiotics, named pantocin A and B. Using a genomic library of Eh318, two cosmids, pCPP702 and pCPP704, were identified that conferred on *Escherichia coli* the ability to inhibit growth of *E. amylovora*. The two cosmids conferred different antibiotic activities on *E. coli* DH5alpha and had distinct restriction enzyme profiles. A smaller, antibiotic-conferring DNA segment from each cosmid was cloned. Each subclone was characterized and mutagenized with transposons to generate clones that were deficient in conferring pantocin A and B production, respectively. Mutated subclones were introduced into Eh318 to create three antibiotic-defective marker exchange mutants: strain Eh421 (pantocin A deficient); strain Eh439 (pantocin B deficient), and Eh440 (deficient in both pantocins). Cross-hybridization results, restriction maps, and spectrum-of-activity data using the subclones and marker exchange mutants, supported the presence of two distinct antibiotics, pantocin A and pantocin B, whose biosynthetic genes were present in pCPP702 and pCPP704, respectively. The structure of pantocin A is unknown, whereas that of pantocin B has been determined as (R)-N-[(S)-2-amino-propanoylamino)-methyl]-2-methanesulfonyl-succinic acid. The two pantocins mainly affect other enteric bacteria, based on limited testing.

PMID: 11133457 [PubMed - indexed for MEDLINE]

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Applied and Environmental Microbiology, January 2001, p. 284-292, Vol. 67, No. 1
0099-2240/01/\$04.00+0 DOI: 10.1128/AEM.67.1.284-292.2001

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Pantoea agglomerans Strain EH318 Produces Two Antibiotics That Inhibit *Erwinia amylovora* In Vitro

Sandra A. I. Wright,[†] Cathy H. Zumoff, Lois Schneider, and
Steven V. Beer^{*}

Department of Plant Pathology, Cornell University, Ithaca, New York
14853

Received 31 May 2000/Accepted 3 October 2000

ABSTRACT

Pantoea agglomerans (synonym: *Erwinia herbicola*) strain Eh318 produces through antibiosis a complex zone of inhibited growth in an overlay seeded with *Erwinia amylovora*, the causal agent of fire blight. This zone is caused by two antibiotics, named pantocin A and B. Using a genomic library of Eh318, two cosmids, pCPP702 and pCPP704, were identified that conferred on *Escherichia coli* DH5 α the ability to inhibit growth of *E. amylovora*. The two cosmids conferred different antibiotic activities on *E. coli* DH5 α and had distinct restriction enzyme profiles. A smaller, antibiotic-conferring DNA segment from each cosmid was cloned. Each subclone was characterized and mutagenized with transposons to generate clones that were deficient in conferring pantocin A and B production, respectively. Mutated subclones were introduced into Eh318 to create three antibiotic-defective marker exchange mutants: strain Eh421 (pantocin A deficient); strain Eh439 (pantocin B deficient), and Eh440 (deficient in both pantocins). Cross-hybridization results, restriction maps, and spectrum-of-activity data using the subclones and marker exchange mutants, supported the presence of two distinct antibiotics, pantocin A and pantocin B, whose biosynthetic genes were present in pCPP702 and pCPP704, respectively. The structure of pantocin A is unknown, whereas that of pantocin B has been determined as (R)-N-[(S)-2-amino-propanoylamino]-methyl]-2-methanesulfonyl-succinamic acid. The two pantocins mainly affect other enteric bacteria, based on limited testing.

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► INTRODUCTION

Pantoea agglomerans or *Pantoea dispersa* (20), also known as *Erwinia herbicola* (Löhnis) Dye are members of the *Enterobacteriaceae* and are ubiquitous in nature, inhabiting plants, soil, and water (16, 20, 21) and animals and humans (16, 35). Strains belonging to *E. herbicola* are members of the *E. herbicola-Enterobacter agglomerans* cluster; some have been redesignated *P. agglomerans* and *P. dispersa*, while others did not fall into either of the two species (20). *P. agglomerans* and *P. dispersa* are frequent companions of *Erwinia amylovora* (Burr.) Winslow et al. the causal agent of the disease fire blight of apple and pear trees (36, 38). There is current interest in *P. agglomerans* and *P. dispersa* as biological control agents for fire blight because they are harmless to apple and pear trees and are able to protect them against invasion of the pathogen (4, 29). *P. agglomerans* strain Eh318, isolated from a symptomless apple stem in New York State, protected immature pear fruits in the laboratory (53) and apple blossoms in controlled environment and orchard tests (5, 23, 43).

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Production of antibiotics inhibitory to *E. amylovora* by several strains of *Pantoea* spp. seems important for inhibition of *E. amylovora* in planta (30, 45, 53). In vitro inhibition of *E. amylovora* by antibiotics of *Pantoea* spp. is well documented (24, 28, 45, 47, 48). Different strains of *P. agglomerans* and *P. dispersa* have different spectra of antimicrobial activity (15, 25) and produce different types of inhibition zones against the same indicator organism (3); both observations presumably reflect the fact that different antibiotics are produced by different strains. One strain of *P. agglomerans*, strain C9-1, produces three different antibiotics, which were purified and characterized preliminarily (27). The presence of an inner and an outer zone of inhibition in an *E. amylovora* 110-seeded agar overlay led Ishimaru and coworkers to suggest that *P. agglomerans* C9-1 produced more than one antibiotic (28). *P. agglomerans* Eh318 also forms a double halo in an overlay seeded with *E. amylovora* strain Ea273 (Fig. 1), which we hypothesized was due to the action of two antibiotics (S. Wright-Dobrzaniecka and S. V. Beer, Abstr. 93rd Gen. Meet. Am. Soc. Microbiol. 1993, abstr. Q420, 1993). One of these, pantocin B has been characterized chemically as (R)-N-[[[(S)-2-amino-propanoylamino)-methyl]-2-methanesulfonyl-succinamic acid (10); it inhibits *N*-acetylornithine transaminase through competitive binding with *N*-acetylornithine, thus interfering with the last step in the arginine biosynthetic pathway (10, 49). Antibiotics of *Pantoea* species frequently are grouped on the basis of the type of amino acid that, when added to the overlay, renders *E. amylovora* insensitive to them. Most strains of *P. agglomerans* and *P. dispersa* produce histidine-reversible or histidine- and/or leucine-reversible antibiotics (14, 50). The antibiosis of *E. amylovora* by *P. agglomerans* Eh318 is abolished in the presence of a combination of histidine and arginine, but not by either amino acid alone (48, 49).

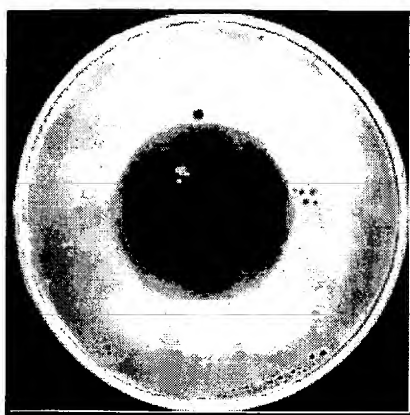


FIG. 1. *P. agglomerans* Eh318 produces a double zone of inhibition against *E. amylovora* Ea273 in a chloroform assay.

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We have demonstrated that two distinct cosmids, pCPP702 and pCPP704, containing inserts of Eh318 DNA bestow on *E. coli* the ability to produce two distinct antibiotics inhibitory to *E. amylovora*. The observed requirement for two amino acids to abolish antibiosis by Eh318 is a consequence of the two antibiotics. They were named pantocins after the genus name of the producing organism. Histidine reversed the activity of pantocin A, and arginine reversed that of pantocin B. The distinctive antibiotic phenotypes of defined marker-exchange mutants of Eh318 that are defective in production of pantocin A and/or B provide clear genetic evidence for the production of these two antibiotics by *P. agglomerans*.

(Brief reports on these findings were made previously at scientific conferences [56; Wright-Dobrzniecka and Beer, Abstr. 93rd Gen. Meet. Am. Soc. Microbiol 1993].)

MATERIALS AND METHODS

Bacterial strains, plasmids, media, and growth conditions. The bacterial strains and plasmids used in this study are listed in Table 1. All strains were cultured routinely in Luria-Bertani (LB) medium (39). The reaction of strains Eh318 and Eh252 (Table 1) in API 20E (bioMérieux Vitek, Inc., Hazelwood, Mo.) was consistent with their identification as species of *Pantoea*. The results of a GN2 Microlog test (Biolog, Inc., Hayward, Calif.) identified them with highest probability as belonging to *P. agglomerans*. *E. amylovora* and *Pantoea* spp. were cultured at 28°C, and *Escherichia coli* was cultured at 37°C. The following antibiotics were used at the concentrations indicated: ampicillin, 100 µg/ml; chloramphenicol, 20 µg/ml; kanamycin, 50 µg/ml; nalidixic acid, 20 µg/ml; rifampin, 25 µg/ml; spectinomycin, 50 µg/ml; tetracycline, 10 µg/ml. Antibiotic production assays were done on minimal media, either glucose-asparagine (GA) medium (52, 53) or *E. coli* minimal medium (EcMM), which contained per liter: 0.25 g of yeast extract (Difco Laboratories, Detroit, Mich.), 20 ml of glycerol, 4.0 g of K₂HPO₄, 1.72 g of KH₂PO₄, 0.5 g of NaCl, 2.0 g of (NH₄)₂SO₄, 0.2 g of sodium citrate, and 0.02 g of MgSO₄ · 7H₂O. Thiamine

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was added to GA medium and EcMM at 0.1 $\mu\text{g/ml}$ for the growth of *E. coli* strains DH5 α and JM109.

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TABLE 1. Bacterial strains, phages, cosmids, and plasmids used in this study

Antibiotic production assays. Antibiotic production was assayed by two methods, the live assay and the chloroform assay. In both assays, a basal layer of either GA medium or EcMM was covered with a soft-agar overlay which consisted of 0.8 ml 5 \times GA salts stock solution, 3.2 ml of 0.7% agar (cooled to 48 to 50°C), and 0.3 ml of bacterial indicator cells, grown to an optical density at 620 nm of 0.4, spun down, and resuspended in an equal volume of 5 mM potassium phosphate buffer, pH 6.5. Overlays seeded with *E. coli* DH5 α were amended with thiamine to a final concentration of 0.1 $\mu\text{g/ml}$.

In the live assay, the strains to be tested for antibiotic production were spotted directly onto the gelled surface of the overlay. In the chloroform assay, the producer was allowed to grow in a 6-mm-diameter spot, after which all growth was removed and the plate was treated with chloroform and then overlaid with the indicator strain (15). Plates of *E. coli* DH5 α harboring cosmid clones routinely were incubated for 2 days to allow for antibiotic production. When determining whether the presence of amino acids affected the sensitivity of the indicator strain to antibiosis, arginine was added to the overlay to a final concentration of 0.76 g/ml and histidine was added at 1 g/ml, when the amino acids were added alone. These concentrations were halved when the amino acids were added in combination. The amount of amino acid added corresponded to a final concentration of 0.2 g of nitrogen/ml in the overlay. The plates were incubated at 28°C for 16 h before zones of inhibition could be seen. The chloroform assay generally resulted in larger zones of inhibition. It was therefore employed to confirm the absence of antibiotic production by the marker-exchange mutants of Eh318.

Gene transfer methods. The first spot-agar conjugation technique described by Steinberger and Beer (41) was employed, with the modification of 12 h of incubation of the spot and subsequent resuspension in 0.5 ml of sterile water before spreading on selective medium. The cosmids pCPP702 and pCPP704 were thus transferred from *E. coli* JM109 to *E. coli* DH5 α , and the pUT::mini-Tn5Cm plasmid was transferred from *E. coli* SM10 λ pir to *E. coli* CGSC6151(pCPP719). Mobilization of the two cosmids between JM109 and DH5 α required the presence of the helper *E. coli* HB101(pRK2013). The nalidixic acid resistance of DH5 α was employed to select for the transconjugants after the matings. Routine transformations of *E. coli* strains with plasmids followed the procedure of V. Simanis as described by Hanahan et al. (22).

DNA isolation and manipulations. For the construction of a genomic library, the DNA from plasmid pCPP9 (2) was isolated by the large-scale alkaline lysis procedure (39) and purified further by cesium chloride-ethidium bromide equilibrium centrifugation (39). Isolation of total genomic DNA of Eh318 and its mutants, whether for library construction or to run on gels for Southern blotting, followed the procedure of Silhavy and coworkers (40). Cosmid DNA was isolated by a medium-scale alkaline plasmid preparation procedure that combined the methods described by Marko et al. (33) and Zasloff et al. (57). Plasmid DNA was routinely isolated on a small scale by an alkaline miniprep extraction procedure (7).

Restriction endonucleases were purchased from Promega Corp. (Madison, Wis.), and digestion of DNA was carried out as recommended by the manufacturer. Calf intestinal alkaline phosphatase was obtained from Boehringer Mannheim (Indianapolis, Ind.) and DNA T4 ligase was obtained from Bethesda Research Laboratories (GIBCO BRL, Gaithersburg, Md.). Dephosphorylations and ligations followed standard procedures (39).

DNA in agarose gels for Southern transfer was depurinated, denatured, neutralized, and transferred to Gene Screen Plus nylon membranes (Dupont, NEN Research Products, Boston, Mass.) according to the capillary blotting procedure suggested by the manufacturer (1). Prehybridization, hybridization and washes of membranes were done at 65°C and followed the protocol of Sambrook et al. (39), with the addition of 2.5 mM EDTA, 50 mM Tris-HCl (pH 8.0), and 10% polyethylene glycol to the prehybridization solution. Membranes were washed for 15 min in 1× SSC (1× SSC is 0.15 M NaCl plus 0.015 M sodium citrate) with 0.2% sodium dodecyl sulfate and twice in 0.4× SSC with 0.2% sodium dodecyl sulfate. The DNA fragment to be used as a probe was purified from agarose with the GeneClean Kit (Bio 101, Inc., La Jolla, Calif.) and labeled with 50 µCi of [α -³²P]dGTP (Dupont, NEN) by the random primer labeling method (17). The probe was purified with a Sephadex G-50 spin column (Boehringer Mannheim). The membrane was exposed to Kodak X-Omat AR film (Eastman Kodak Co., Rochester, N.Y.) at -80°C with a Cronex Lightning Plus intensifying screen (E. I. Du Pont de Nemours & Co., Wilmington, Del.).

Construction of a genomic library. Cloning of genomic DNA fragments of Eh318 of approximately 40 kb into the cosmid vector pCPP9 (2) followed the procedure of Ish-Horowicz and Burke (26), with the inclusion of a DNA sizing step on a 10 to 40% sucrose gradient (39). Fractions containing fragments of 32 to 47 kb from a partial *Sau*3AI digest were dephosphorylated with calf intestinal alkaline phosphatase. The vector pCPP9 was digested separately with either *Eco*RI or *Sal*I, further digested with *Bam*HI, and ligated with the genomic *Sau*3AI fragments. Recombinant cosmids were packaged in vitro with the Gigapack packaging kit (Stratagene, La Jolla, Calif.), and transduced into *E. coli* JM109. Transductants were selected on the basis of their spectinomycin resistance.

Screening the genomic library for antibiotic-producing transductants. Transductants were screened for antibiotic production in the live assay using an overlay seeded with Ea273. The cosmid DNA of colonies that produced antibiotics was extracted, digested with several restriction enzymes, and electrophoresed to visualize restriction enzyme profiles. Antibiosis toward Ea273 in the presence and absence of arginine and histidine was evaluated by a modified chloroform assay in which the producer was allowed to grow for 2 days on GA medium before it was removed and the plate was exposed to chloroform vapors. DH5 α carrying two distinct cosmids that conferred antibiosis toward Ea273 was assayed for activity against a number of different bacteria (see Table 2). The marker exchange mutants of Eh318 that were deficient in pantocin A and/or B synthesis (see below) were included to confirm that the activities of pantocin A and B were consistent in different genetic backgrounds. The results were recorded qualitatively (absence or presence of zones of inhibition) rather than quantitatively, since both the live and the chloroform tests were used. The sensitivities of Eh252 and Eh318 (control) to pantocin A and pantocin B produced by DH5 α (pCPP1051) and DH5 α (pCPP719) were tested separately. A colony of Ea273 that appeared in a zone of inhibition produced by Eh421 (deficient in pantocin A synthesis [PanA⁻]) was propagated several times on fresh plates where Eh421 had grown, in order to select for maintenance of the

antibiotic resistance phenotype. The strain Ea273R421 was subsequently seeded in an overlay that was poured over plates containing antibiotics produced by Eh421 (PanA⁻) and Eh318.

Construction of smaller, antibiotic-encoding clones. DNA from cosmid pCPP702 and pBluescript KS(+) was digested with *Eco*RI, ligated, and added to competent DH5 α cells. White colonies on LB agar amended with ampicillin and X-Gal (5-bromo-4-chloro-3-indolyl- β -D-galactopyranoside) were screened for antibiotic production in a live assay with GA medium or EcMM as the basal medium. The cloned DNA present in colonies that produced zones of inhibition against Ea273 was characterized. A smaller, antibiotic-conferring clone was designated pCPP1051. Similarly, a subclone of pCPP704 was constructed by digesting the cosmid DNA with *Bam*HI and religating. A 32.7-kb *Bam*HI fragment that also included the cosmid vector pCPP9 was designated pCPP719.

Transposon mutagenesis of pCPP1051 and pCPP719. The two subclones, pCPP1051 and pCPP719, were mutagenized with transposons that carried distinct antibiotic resistances (kanamycin and chloramphenicol, respectively) to allow for the construction and selection of a double marker exchange mutant of Eh318 that lacked the ability to produce either pantocin. Tn5 insertion mutagenesis of pCPP1051 was performed essentially as described by de Bruijn and Lupski (12). *E. coli* CC118 was the host for pCPP1051 and the λ ::Tn5 phage used was λ b221 *rex*::Tn5 *cl*857 (6). Phage stocks were propagated in strain LE392 as described (12). *E. coli* DH5 α was transformed with plasmid DNA that had been extracted from CC118(pCPP1051) infected with λ ::Tn5 and plated. Resulting colonies were screened in a live assay, and insertions were mapped.

E. coli CGSC6151(pCPP719) was mated with *E. coli* SM10 λ pir(pUT/mini- Tn5*Cm*)(13). The plasmid carrying the mini-Tn5*Cm* element bears *oriR6K* and was unable to replicate in strain CGSC6151. Transconjugant colonies of CGSC6151(pCPP719::miniTn5*Cm*) were selected on medium amended with spectinomycin and chloramphenicol and the plasmid DNA was isolated en masse and used to transform DH5 α . Single colonies of DH5 α (pCPP719::mini-Tn5*Cm*) were grown and tested for antibiotic production in a live test. The insertion site of an antibiotic-deficient colony was mapped.

Marker exchange mutagenesis, screening, and phenotypic characterization. DNA fragments that carried transposon insertion A14 or 122 were cloned into pBR322 or pBR325, respectively, because these cloning vectors maintained themselves stably in Eh318. The new constructs were electroporated into Eh318, and cured, which allowed for marker exchange mutagenesis to occur. Successive subculturing in phosphate-limited medium, while maintaining selection for Km^r (for the Tn5 insertion) or Cm^r (for the mini-Tn5*Cm* insertion) (37), resulted in mutant selection. Tetracycline-sensitive colonies were screened for antibiotic production in a live assay, and colonies with reduced antibiotic production were selected for further analysis. Plasmid preparations of these confirmed the absence of the pBR325 or pBR322 constructs. The points of the insertions in putative marker exchange mutants were confirmed based on Southern blot analyses (data not shown) (55).

► RESULTS

Identification and characterization of antibiotic-encoding cosmids. Five of 1,500 members of the genomic library of Eh318 in *E. coli* JM109 exhibited antibiosis against Ea273 on GA medium. Examination of the *Eco*RI and *Hind*III digest patterns of the five cosmids (data not shown) (55) indicated that two of the cosmids, designated pCPP702 and pCPP704, had no bands in common. The restriction enzyme patterns of two of the other cosmids (pCPP701 and pCPP703) appeared similar to those of pCPP702, whereas the pattern of the fifth cosmid (pCPP705) was distinct from all others. Figure 2 depicts the absence of common bands in pCPP702 and pCPP704 after digesting with *Eco*RI and a combination of *Eco*RI and *Xba*I. This initial genetic difference between these two cosmid clones was supported by detailed genetic mapping of clones, mapping of transposon insertions, and cross-hybridization tests.

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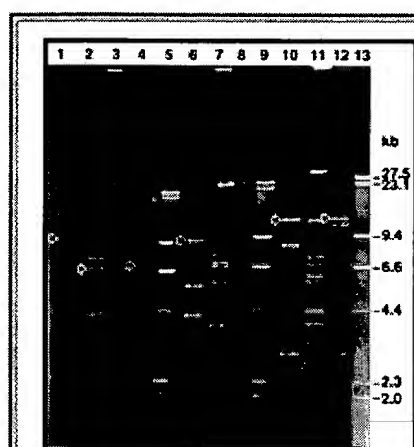


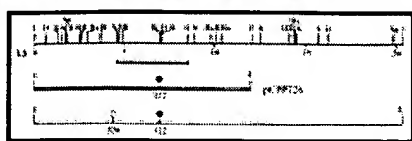
FIG. 2. Restriction enzyme patterns of cosmids pCPP704 (lanes 3, 7, and 11) and pCPP702 (lanes 4, 8, and 12) and a subclone of pCPP702, pCPP1051 (lanes 2, 6, and 10). Lane 1 has Eh318 genomic DNA; lanes 5, 9, and 13 have λ digested with *Hind*III as molecular weight markers. The DNA was digested to completion with *Eco*RI and *Xba*I (lanes 1 through 4), *Eco*RV (lanes 6 through 8), and *Eco*RI (lanes 10 through 12). The arrows indicate the fragments that hybridized with a 3.9-kb *Xba*I-*Hind*III fragment of pCPP1051 (see Fig. 3) that covered a region considered important for synthesis of pantocin A. The composite photograph was created with Adobe Photoshop 5.5.

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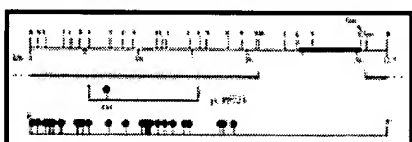
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Construction of pCPP1051 and pCPP719. Digestion of pCPP702 with *Eco*RI resulted in seven fragments, whose sizes—11.8, 10.8, 8.4, 4, 3, 2.3, and 1.8 kb (Fig. 2)—total 42.1 kb, a number which includes the cosmid vector pCPP9 (5.3 kb). Recombinant plasmid pCPP1051 consisted of an 11.8- and an 8.4-kb *Eco*RI fragment from pCPP702 cloned into pBluescript. DH5α(pCPP1051) inhibited Ea273 when grown on EcMM. A restriction enzyme map of the 20.2-kb insert of pCPP1051 was generated (Fig. 3). The genetic region involved in the biosynthesis of pantocin B (10) was cloned from pCPP704 into pCPP719. This clone conferred upon DH5 α the ability to inhibit the growth of Ea273. A detailed restriction enzyme map of pCPP719 was generated (Fig. 4).



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FIG. 3. Physical map of the 20.2-kb insert (top) from pCPP702 in pCPP1051. The 11.8-kb *EcoRI* fragment containing the Tn5 insertion 122 (middle) that was cloned into pBR325 to create pCPP726. This clone was used for marker exchange of insertion 122 into Eh318 to generate Eh421 (PanA⁻). The positions of Tn5 insertion 122, which abolishes pantocin A production (filled lollipop), and insertion 326, which does not affect production (open lollipop), are shown at the bottom. The *XbaI*-*HindIII* fragment (solid gray bar, below map) was radioactively labeled for use as a probe in Southern blots. Abbreviations: A, *Apal*; B, *BamHI*; C, *ClaI*; E, *EcoRI*; R, *EcoRV*; S, *Sall*; Sm, *SmaI*; X, *XbaI*. The figure was generated from Innovative Data Design MacDraft, converted to MacroMedia FreeHand 8, and printed from Adobe Photoshop 5.5.



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FIG. 4. Physical map of pCPP719 (top), with the DNA of the pCPP9 vector indicated as a thick bar. The *ClaI* fragment resulting from a partial digest of pCPP810, containing the mini-Tn5Cm insertion A14 (bottom) was cloned into pBR322 to create pCPP723. This clone was used for marker exchange of insertion A14 into Eh318 and Eh421 (PanA⁻) to generate Eh439 (PanB⁻) and Eh440 (PanAB⁻), respectively. At the bottom is a map of the locations of mini-Tn5Cm insertions (filled lollipops), all of which resulted in abolished pantocin B production. The 23-kb *SmaI* fragment that was radioactively labeled for use in Southern blot experiments is indicated as two solid gray bars (below map). The dashed lines indicate the points of continuation in the circular pCPP719, and tick marks indicate the points of *SmaI* cleavage. Abbreviations: B, *BamHI*; C, *ClaI*; E, *EcoRI*; S, *Sall*; Sm, *SmaI*; X, *XbaI*. The figure was generated from Innovative Data Design MacDraft, converted to MacroMedia FreeHand 8, and printed from Adobe Photoshop 5.5.

Transposon mutagenesis and construction of clones for mutagenesis of Eh318. The two subclones, pCPP1051 and pCPP719, were subsequently mutagenized with Tn5 and mini-Tn5Cm, respectively, to generate constructs potentially useful for marker exchange mutagenesis of Eh318 and to determine the approximate locations and sizes of pantocin-encoding regions in the subclones. Colonies of DH5 α (pCPP1051::Tn5) and DH5 α (pCPP719::miniTn5Cm) that had lost the ability to inhibit growth of *E. amylovora* were selected, and the transposon insertions were mapped. The Tn5 insertion 122 abolished pantocin A production by DH5 α (pCPP1051) while insertion 326 did not (Fig. 3). The 29 mini-Tn5Cm-insertions all abolished pantocin B production by DH5 α (pCPP719) (Fig. 4). Insertion A14 was chosen for marker exchange mutagenesis. The 11.8-kb *EcoRI* fragment of pCPP1051 containing insertion 122 was cloned from pCPP745 (a pantocin A-deficient Tn5 mutant of pCPP1051) into pBR325 to generate pCPP726 (Fig. 3). Similarly, a 10.3-kb *ClaI* fragment of pCPP719 containing insertion A14 was cloned from pCPP810 (the mini-Tn5Cm mutant of pCPP719) into pBR322 to generate pCPP723 (Fig. 4).

Marker exchange mutagenesis. Plasmids pCPP726 and pCPP723 were separately introduced into Eh318 and

subsequently cured, allowing for homologous recombination of the transposon insertions into the genome of Eh318. A marker exchange mutant originating from Eh318(pCPP726) was designated Eh421 (PanA⁻), and a mutant originating from Eh318(pCPP723) was designated Eh439 (PanB⁻). Eh421 (PanA⁻) was mutagenized using pCPP723 to generate a mutant of Eh318 that carried both transposons, designated Eh440 (PanAB⁻). Eh440 (PanAB⁻) was identified by its complete lack of antibiosis toward Ea273 in a live test. The genomic DNA of Eh421 (PanA⁻) was hybridized to a radioactive probe of a 3.9-kb *Xba*I-*Hind*III fragment of pCPP1051 (Fig. 3) and that of Eh439 (PanB⁻) and Eh440 (PanAB⁻) to a probe of the 23-kb *Sma*I fragment of pCPP719 (Fig. 4), respectively. Since Eh440 (PanAB⁻) was derived from Eh421 (PanA⁻), it was not necessary to confirm the location of the Tn5 insertion. In all cases, the mutants were true marker exchange mutants, based on analysis of the Southern blots (see details of analysis below) (55). DNAs of Eh421 (PanA⁻) and Eh318 were digested with *Not*I and *Xba*I, *Hind*III, *Bgl*II, and *Eco*RI and probed with the 3.9-kb insert DNA of pCPP717. The Tn5 insertion was detected in the expected position based on the analysis of several enzyme digests (data not shown) (55). The 12-kb *Not*I-*Xba*I fragment of Eh318 was replaced by a 10- and a 3.2-kb fragment in Eh421 (PanA⁻). The 1.45-kb *Hind*III fragment of Eh318, which had been mutated by the inserted transposon, was absent in Eh421 (PanA⁻) as expected.

The analysis of the insertion sites in Eh439 (PanB⁻) and Eh440 (PanAB⁻) using a radioactive probe of the 23-kb *Sma*I fragment of pCPP719 indicated successful marker exchange also of the mini-Tn5*Cm* insertion. The combined digest with *Xba*I and *Sal*I showed that the 5-kb *Xba*I fragment, which contained mini-Tn5*Cm*, was absent in Eh439 (PanB⁻) and Eh440 (PanAB⁻) (data not shown) (55). That fragment had been replaced by two new genomic hybridizing fragments, 2.5 and 6.7 kb in size, through the presence of a *Sal*I site in one end of the transposon. Moreover, in the *Bam*HI and *Cla*I double digest of Eh439 (PanB⁻) and Eh440 (PanAB⁻) DNA, the native 6.6-kb *Cla*I fragment was absent from the blot as expected (55).

The mutants of Eh318 that were defective in synthesis of one of the antibiotics, i.e., Eh421 (PanA⁻) and Eh439 (PanB⁻), produced inhibition zones against Ea273 in the chloroform assay that at first glance looked similar in size to or slightly smaller than those produced by Eh318 (data not shown). However, the zones were single in nature, whereas Eh318 produced a double halo (Fig. 1). In the test in which overlays were seeded with Ea273R421 (the variant of Ea273 that was resistant to the antibiotic[s] produced by Eh421 [Pan A⁻]) and E318 and Eh421 (Pan A⁻) were the producers, only the plates in which Eh318 had grown had a zone of inhibition (data not shown).

Cross-hybridization data. *Eco*RI-*Xba*I-, *Eco*RV-, and *Eco*RI- digested DNA of Eh318, pCPP702, pCPP704, and pCPP1051 was hybridized to a 3.9-kb *Xba*I-*Hind*III fragment of pCPP1051 that encompassed the DNA region of the Tn5 insertion site 122 in the pantocin A-deficient clone pCPP726 (Fig. 3). The only hybridizing fragments were those of Eh318, pCPP702 or pCPP1051 origin, as indicated in Fig. 2: a 9.9-kb *Eco*RI-*Xba*I (lane 1), a 7.2-kb *Eco*RI-*Xba*I (lanes 2 and 4), a 9.9-kb *Eco*RV (lane 9), and a 12-kb *Eco*RI (lane 16 and 18) band (data not shown).

Effect of amino acid supplementation on activity of pantocins. The antibiotic activity of DH5α(pCPP702) to *E. amylovora* was inhibited by the presence of histidine but not arginine; however, arginine but not histidine inhibited the activity of DH5α(pCPP704). However, the zone of inhibition produced by Eh318 in an overlay seeded with *E. amylovora* was not affected by the presence of either amino acid, when added separately or

together.

Spectrum of activity. The antibacterial spectra of activity of Eh318, DH5 α (pCPP702), Eh439 (PanB⁻), DH5 α (pCPP704), Eh421 (PanA⁻), and Eh440 (PanAB⁻) are summarized in Table 2. The antibacterial spectra of the two antibiotics produced by Eh318 that are inhibitory to *E. amylovora* differ somewhat but overall are highly similar. Typically, the antibiotics inhibit close relatives of Eh318, such as species of *Pantoea*, *Erwinia*, *Enterobacter*, and *Serratia*. Eh252 was resistant to pantocin A but not pantocin B (Fig. 5; Table 2). In addition, we can conclude from the data that a third antibiotic of Eh318 inhibits some nonenterics, judging by the spectrum of activity of Eh440 (PanAB⁻), and this antibiotic does not inhibit *E. amylovora*.

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TABLE 2. Inhibition of bacteria by Eh318 and derivatives^a producing one or two pantocins that inhibit *E. amylovora*.

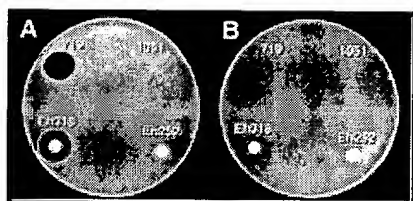


FIG. 5. Sensitivity of Eh252 (A) and Eh318 (B), to antibiotics produced by Eh318, Eh252, DH5 α (pCPP1051) (denoted 1051), and DH5 α (pCPP719) (denoted 719), in a live assay.

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DISCUSSION

P. agglomerans strain Eh318 produces two antibiotics that are active against *E. amylovora* Ea273 based on genetic, biological, and chemical evidence. We have proposed to name them pantocin A, whose biosynthetic genes are present in pCPP702 and pCPP1051, and pantocin B (10), whose biosynthetic genes are present in pCPP704 and pCPP719. The DNA regions responsible for the synthesis of pantocin A and B are distinct based on size, restriction maps (Fig. 3 and 4), and lack of hybridization of DNA for biosynthesis of pantocin A to that for biosynthesis of pantocin B (Fig. 2). The activities of the two antibiotics also are clearly distinct. The activity of DH5 α (pCPP702) is lost in the presence of histidine, while that of DH5 α (pCPP704) is lost in the presence of arginine. The spectra of activity for the antibiotics produced by strains that synthesize one or both antibiotics are distinct (Table 2). The double zone of inhibition produced by Eh318 in an overlay seeded with Ea273 (Fig. 1) likely is due to the presence of two antibiotics, of which one diffuses further than the other. Mutants that produce only one of the pantocins, i.e., Eh421 (PanA⁻) and Eh439 (PanB⁻), produce single, discrete zones in overlays of Ea273. A variant of Ea273 with spontaneous resistance to the antibiotic produced by Eh421 (PanA⁻), i.e., to pantocin B is sensitive to Eh318.

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Chemical data also suggest that the two antibiotics are distinct. Pantocin B was recently identified as (R)-N-[(S)-2-amino-propanoylamino]-methyl]-2-methanesulfonyl-succinamic acid, a peptide of 296 Da (10). It is sufficiently stable to allow for its isolation and characterization from culture supernatants of DH5 α (pCPP719). In contrast, pantocin A is labile to extremes of pH, and therefore it has been recalcitrant to isolation and structural characterization using similar procedures as employed for pantocin B (M. Jin, personal communication).

Subcloning and transposon mutagenesis data suggest that the genetic region involved in the biosynthesis of pantocin A is at most 7.5 kb, while that of pantocin B is at least 18.5 kb. The Tn5 insertion 326 at map position 4.3 (Fig. 3) does not abolish the antibiotic activity of DH5 α (pCPP1051). A subclone of pCPP1051 that carries only the 11.8-kb *Eco*RI fragment confers pantocin A production on DH5 α (55). Hence, the genes for pantocin A biosynthesis lie within a 7.5-kb region. Based on the mapping of 29 mini-Tn5 insertions in pCPP719 (Fig. 4), the biosynthetic region for pantocin B is at least 18.5 kb. The genetic regions involved in the synthesis of antibiotics of other strains of *P. agglomerans*-*P. dispersa* are under investigation elsewhere. For Eh1087, a New Zealand strain, a 2.2-kb region was found to be essential (31). In Eh252, another New York strain, deletion and complementation analysis of transposon-bearing clones delimited the mceEh252 biosynthetic genes to a 2.4-kb region (44). In C9-1, a Michigan strain, a cosmid clone, AA818, was identified from a genomic DNA library that confers on DH5 α the ability to synthesize herbicidin O (11).

Pantocin A and pantocin B have similar but distinct spectra of activity. However, only pantocin B inhibited *P. agglomerans* Eh252, *Xanthomonas campestris* pv. pelargonii and *E. coli* DH5 α (Table 2). The two pantocins produced by DH5 α carrying the cosmids mainly inhibited enteric strains of bacteria. They are together solely responsible for the inhibition of *Erwinia stewartii*, *Erwinia chrysanthemi*, *Erwinia carotovora* subsp. *carotovora*, and *E. amylovora* by Eh318, judging by the absence of inhibition of these strains by Eh440 (PanAB⁻). This result is consistent with those of El-Goorani and coworkers, who found that the antimicrobial activity of Eh318 primarily affects enterics, with the exception of *Rhodococcus fascians* (15), and the same was true for several other strains of *Pantoea* spp. (15, 25, 28). The antibiotics of several *Pantoea* strains were initially designated bacteriocins due to their inhibition primarily of closely related species (3). Based on the inhibition by Eh440 (PanAB⁻) of *Streptococcus faecalis*, *X. campestris* pv. pelargonii, *Pseudomonas syringae* pv. tomato, and *Klebsiella pneumoniae*, Eh318 likely produces a third antibiotic compound that is ineffective on erwinias.

Earlier studies have found that the zone(s) of inhibition produced by Eh318 in an overlay seeded with *E. amylovora* is abolished or reduced in diameter to 50% or less in the presence of a combination of histidine and arginine (48-50). However, in our experiments, using as much as 10 mg of the two amino acids per ml in the overlay did not prevent the formation of zones. Perhaps numbers of Eh318 cells used or the time they were allowed to produce antibiotic overcame the arginine-histidine supplementation effect. The arginine effect on pantocin B activity likely is due to the redundancy of the arginine biosynthetic pathway, the target of pantocin B (10), when arginine is supplied exogenously.

Pantocin A is inactive in the presence of histidine, which is a characteristic of most antibiotics produced by *Pantoea* species that have been tested (14, 50, 51). MceEh252, the antibiotic produced by *P. agglomerans* strain Eh252 (J. L. Vanneste, J. Yu, D. C. Cornish, and M. D. Voyle, 7th Int. Congr. Plant Pathol, paper 3.5.4, 1998 [www.bspp.org.uk/icpp98/abstracts/3.5/4.html]), also is antagonized by histidine. Interestingly,

Eh252 was unaffected by pantocin A, but it was antagonized by pantocin B (Fig. 5; Table 2). Strains Eh252 and Eh318 both were isolated from apple tissue in the same fruit growing area in New York state. The two histidine-type antibiotics, pantocin A and mceEh252, have low molecular masses (<3,000 Da) (Jin, personal communication; Vanneste et al., 7th Int. Congr. Plant Pathol.). Although their structures are not known, mceEh252 has been proposed to be a peptide and a microcin (46; Vanneste et al., 7th Int. Congr. Plant Pathol.) based on its protease sensitivity (45). Pantocin A is water soluble (Jin, personal communication) and also is probably a small peptide (55). A DNA fragment of Eh252 hybridized to a similar sized fragment (2.5 kb, *Xba*I-*Hind*III) in Eh318 when probed with radioactively labeled DNA of pCPP1051 (S. A. I. Wright and S. V. Beer, unpublished data). This suggests that pantocin A and mceEh252 have one or more homologous genes that are involved in biosynthesis. It is unlikely, however, that pantocin A and mceEh252 are identical, since Eh252, but not Eh318, is active against *A. tumefaciens* (15), and pantocin A but not mceEh252 is active against *Pantoea stewartii* and *Serratia marcescens* (Table 2) (45; Wright and Beer, unpublished data).

The only *Pantoea* histidine-type antibiotic for which there exists some structural information is herbicolin O, a β -lactam antibiotic (27). Herbicolin O is similar to pantocin A in that its molecular weight is less than 3,500 and its activity is labile to acid (pH 3.5) and base (pH 10) (28). Although their antimicrobial spectra have not been compared in the same assay at the same time, they are both active against Eh112Y, *E. amylovora*, *Enterobacter aerogenes*, *S. marcescens*, *E. carotovora* subsp. *carotovora*, and inactive against several pseudomonads, *Bacillus megaterium*, and *K. pneumoniae* (Table 2), (15, 28). Pantocin A, mceEh252, and herbicolin O may fall into a family of structurally related compounds. Interestingly, the genes responsible for their synthesis do not reside on native plasmids (11, 45, 55), whereas the biosynthetic genes for several other antibiotics of *Pantoea* sp. are plasmid borne (19, 30, 42).

We have demonstrated the value of using a genomic library to identify and isolate clones corresponding to distinct biosynthetic regions of two antibiotics. The differences in their inhibitory activities and sensitivities to extremes of pH, in addition to the genetic difference, clearly indicate that pantocin A and pantocin B are two distinct compounds, which are produced by one strain of *P. agglomerans*.

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FOOTNOTES

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